VOLUME II NUMBER 4

THE ELEMENTARY SCHOOL TEACHER AND COURSE OF STUDY

DECEMBER, 1901

SYLLABUS ON THE COURSE OF STUDY.

FOR ROUND-TABLE DISCUSSION, KANSAS STATE TEACHERS' ASSOCIATION, DECEMBER 26, 1901.

FRANCIS W. PARKER.

I. Basis: The needs of society determine the work of the school.

NOTE.—The founders of our republic established the common school as the indispensable means of educating children into citizenship. For obvious reasons, this new and stupendous plan of our forefathers has been executed only in a partial and imperfect way. There has been steady progress in this direction from the beginning. Notwithstanding the lack of the science of education, and the consequent crudeness of teaching, the main outcome of the school has been citizenship. It remains for us to bring to bear the entire work of the school upon the development of community life.

1. The supreme need of society is citizenship—the need that comprehends all other needs.

a. A citizen is one whose paramount interests are in the good and the growth of community life, in the life of the community, the city, the state, the nation, the world.

II. An ideal school is an ideal community, in which the motto, "Each for all and all for each," controls all effort.

1. This ideal is the only one to which the whole being, with its physical, mental, and moral powers, completely responds.

NOTE.—Owing to lack of space, some of the departmental outlines are omitted from this number. Miss Baber's outline on geography for the Elementary School, which was promised for December, will be continued in January.

2. It is fully adapted to the growth of body, mind, and soul in all stages of educative growth.

3. It arouses ever-growing and the deepest, strongest, and most abiding interests. It is the one means of transformation "in the newness of light."

4. It demands continuous originality on the part of both teacher and pupil. It stimulates creative power, fills the mind with problems and with clues to their solution.

5. Under this ideal, the purpose of the teacher and the pupil are one — concentration.

6. This ideal has in it the greatest possibilities for study and growth. It makes everlasting students of both teacher and pupil.

7. It is the only true and scientific guide for the selection, arrangement, and adaptation of subjects for the growth of the whole being — course of study.

8. The idea, "Each for all and all for each," makes morality, ethics, and practical religion the paramount issues of education.

9. Upon the movements toward the realization of this ideal (the golden rule) depends the progress of mankind.

III. A course of study is a systematic arrangement of subjects of thought for the teaching and training of children into citizenship.

1. The subjects of thought are comprehended under man and nature.

2. The modes of attention — observation, hearing, language, and reading — are means and processes of educational thinking.

3. The modes of expression — gesture, voice, speech, music, making, modeling, painting, drawing, and writing — have three functions, namely, physical development, mental power, and moral culture.

4. Arithmetic has to do entirely with the measurement of quantity in the study of man and nature.

5. The modes of attention, the modes of expression, and the study of arithmetic are indispensable auxiliaries to the study of man and nature. They must be used at every step to exercise the body, strengthen the mind, and cultivate motive. By their use, under the stimulus of growing thought, technique is most economically acquired.

a. Spelling, grammar, and all that is included in language, are acquired by the constant and correct use of speech and writing.

IV. Man and nature are the subjects of mind-nutrition, or the subjects of educative attention and expression.

1. The knowledge of man and nature is boundless. The development of community life is the only scientific guide for the selection of subjects from the inexhaustible storehouse.

2. The needs of school-community growth determine the selection of subjects from day to day. Such subjects should be adapted to the growth of the individual and his powers of attention and expression.

3. The pupil's power of attention (study), manifested by expression, determines the sequence (or growth) of subjects.

V. Correlation.

1. An ideal determines everything that goes into its realization. Therefore a course of study cannot be arranged under the usual classification of subjects — geography, history, science, etc. — as the needs of the mind and of the community may include several of these classified subjects in one lesson.

2. Correlation is an absolute rule of life and growth, while isolation of subjects does not meet the necessities of growth.

VI. Varying conditions.

1. Society, family, and race conditions vary; therefore the course of study must vary in selection and adaptation to special needs.

2. Natural and industrial environments differ in structure, vegetation, animal life, in agriculture, manufactures, commerce, etc.

3. The environment determines to a marked degree the selection of subjects of study, as field and industrial excursions are indispensable factors in education.

4. At best, a course of study is suggestive of the things to be done under varying circumstances, allowing the teacher to choose that which is needed by his or her class.

5. A course of study is a growth in which needless things are eliminated and good things added.

VII. Conclusion.

The common school has done more for human liberty than all other American institutions combined, and yet its tremendous task has only just begun. The problems of a free government are now greater than ever. A profound conviction that citizenship is the one thing needful is in the soul of every true patriot. The solemn truth is that mediæval methods, traditions of the ages, the learning and reciting of words, the "going over ground," the training of man into a subject, are by no means equal to the gigantic task before us. The entire direction of the common school must be the teaching and training of citizens. For this one purpose every reasonable means should be used. Fixed governments demand a fixed and uniform course of study. A democracy is a growth, and demands growth in the course of study, in teaching and training.

HISTORY.

EMILY J. RICE.

HISTORY IN PRIMARY GRADES.

THE study of social life in the school is not merely a question of selection of subject-matter, but also one of organization and method. If we introduce typical social occupations into the school and give the children an opportunity to enter actively into social experiences, these experiences become full of meaning to them. The children demand knowledge in order that they may carry on their occupations properly and with an understanding of the relations of these occupations. They study under the same conditions as those that govern the outside life. In the outside world, what we do creates a necessity for knowledge, and the strongest impulse to acquirement is found in the needs of our daily living. If there be no opportunity for the child to use his knowledge in his own activities, it fails to strengthen his power, for power is the result of applied knowledge.

The first condition, then, for the selection of material in history is that the school shall be organized for work. The second is that the occupations shall be related closely to the subjects of the old curriculum. Most teachers still look upon the geography and the history, the science and the number, as the regular studies, and use the occupations for rest and variety, not as the center and vital part of the course. They fail to take advantage of the impulse that the occupations give to the learning of the other subjects, for it is when the children need knowledge to help them in their work that they study to the best purpose. The schools are in danger of the divorce between thought and work that has proved so harmful to our modern industrial system. They keep the industries and the thought-processes entirely separate, instead of making the one an aid to the other. Education through intelligent work gives the possibility that the worker may become an artist, and that labor may be done with joy.

In the earliest years the demand for expression in objective ways is especially strong, and much time should be given to hand-work and dramatization. We must expect little beyond observation and imitation of existing conditions. Children six and seven years old cannot imagine conditions very different from those of their own experiences, or comprehend the past as past. Their interest in other times is from the standpoint of their own ways of doing and thinking, and not because of any appreciation of historic growth. As they gain in power to think of conditions beyond the reach of their observation, we may use more historic material in our teaching; but throughout the primary grades each phase of the work should begin with the immediate environment and make use only of such facts of history as the children can easily relate to their own experiences.

The following is an attempt to plan work in history, or social study, for the first four grades, on the theory that the occupations should determine the lines of study.

THE KINDERGARTEN.

The children will make playhouses, because the interest in home life is universally the great center around which their ideas revolve. Expression takes the form of play, because it is at this age the primary form of realizing the inner life.

The materials chosen are large blocks, in the shape of bricks, twice the size of ordinary building brick, and cubes, triangular prisms, columns, and plinths, in proportionate size. This easily transformed material is chosen rather than the boxes of permanent form, for three reasons: (1) In order that the childrens' ideas, which are changeable, may find a vehicle suited to change, as the ideas alter and grow in clearness. (2) The stimulus to making comes partly through the suggestions found in the material; images grow rapidly while expressing themselves in such partially shaped material. (3) In block building, a few fundamental principles, observed in all building, can be discovered and used; among these are proportion, balance, strength, and suitableness. Blocks furnish this mobile, suggestive material, responding to fundamental building principles.

The houses and the several rooms being built, the uses of the rooms will be defined in their arrangement and furnishing. The older children now might make some of the necessary furniture in a more lasting form.

Those students who are preparing to assist in the kindergarten may choose work from either 1 or 2 below.

1. *Furniture.*—Develop a plan for making furniture, choosing (*a*) material — manilla paper and wood; (*b*) articles to be made; (*c*) method of suggestion or direction in giving the work to the children.

2. *Plays founded on home activities.*—Select any branch of home industry and indicate the mode of play or work that you would take from it into the kindergarten. Show (*a*) plan of development with the children; (*b*) making; (*c*) modeling; (*d*) drawing or painting; (*e*) songs and stories; (*f*) dramatization.

3. *Activities of the neighborhood.*—The work of the postman, milkman, grocer, and driver or motorman may be carried out in the same way.—*Bertha Payne.*

FIRST GRADE.

The chief social interest of the children in the first grade, as of those in the kindergarten, is in the home and immediate neighborhood. It seems best, therefore, to use similar material for study, adding to it something of the relation of the things used in the home to the larger world from which they come. The children are still in the play period and demand abundant means of concrete expression; hence the building and furnishing of playhouses and games of occupation may well be continued. Their ideas are more definite than are those of the kindergarten children, and, instead of using blocks and paper as material for building, destroying and re-creating frequently, they may make something permanent — houses of wood — adapting to their needs boxes which can be easily procured. A plan for a playhouse is given in Miss Wygant's outline of first-grade work for this month.

OUTLINE OF WORK.

1. Building materials. (*a*) Wood: kinds of wood used; best kinds for different purposes; sections of wood cut, polished, and oiled, from which the children decide what kinds to use for woodwork of houses and for different articles of furniture; pictures of forests; cutting of trees; transportation to saw-mills; houses of different countries. See Harwood, "The Story of a Pine Board," *St. Nicholas*, Vol. XXV, p. 20. (*b*) Stone: kinds; where obtained; how prepared for use; metal work; blacksmith shop and foundry. (*c*) Brick: processes of manufacture.

2. Making of dishes, cooking, and serving of food. (*a*) Study of agriculture: visit to a farm; preparation of soil for grain; planting; harvesting; grinding; transportation; care of animals; making of butter and cheese; visits to groceries and bakeries; making of maple sugar; growth of sugar cane. (*b*) Pottery: material; form; decoration.

3. Weaving of mats and simple needlework. (*a*) Study of clothing: preparation of wool for use in weaving; washing and shearing of sheep; carding; spinning; weaving; work on a cotton plantation; separation of seeds from the cotton; transportation of cotton; raising of flax; care of the silk worm.

4. Civics: (*a*) Occupations seen on the lakeshore; visits to the harbor, the life-saving station and light-house; the postman; the fireman.

5. Stories of the events celebrated in the yearly holidays.

SECOND GRADE.

The children in this grade may do more difficult work in the household arts than those in the first grade, and see more deeply into the relations of their work to the work of others, both past and present. They should, therefore, spend a longer time in the study of one industry than before, and may trace something of the evolution of that industry in its most primitive forms. We shall make the textile work our first center, and continue the study as long as is warranted by the interest of the children.

OUTLINE OF WORK.

1. Handwork. (See Miss Mitchell's outline in COURSE OF STUDY, Vol. II, No. 2, p. 151.) That outline is for a year's work on textiles, although by mistake in printing it is not so indicated.

2. The textile industry of our own time. Visit factories and shops.

3. History of the processes of spinning, dyeing, and weaving: the spindle and distaff; the spinning wheel; the American-Indian and other primitive looms; the colonial loom.

4. History of people in the shepherd stage of development: (*a*) Kind of country that a shepherd people would need: give a proper setting to the story of a typical family; as, wide plains; use pictures and blackboard drawings; reasons for the shepherds moving from place to place and wandering over a great amount of country—nomad life; travel by night guided by the stars—no sure guide by day; learned by watching the stars to calculate times and seasons; used the stars in art; necessity for wells of water. (*b*) Social organization: The patriarchal family. The story must be one of a large family, all depending upon its patriarch for guidance; wisdom of patriarch, able to plan his journeyings under many conditions, as the firmament, the pastures, other tribes; property in flocks and herds; common ownership; hospitality a special virtue; gentleness of character cultivated by occupation, the care and protection of animals; solidarity of family, men who live their whole lives together; healthful out-of-door life; easy life, tending toward contemplation instead of active labor; separation of family because of necessity for wells of water and pastures. (*c*) Food: milk and flesh, chiefly; care of flocks; the shepherd boy; the sheep-fold; occupations of the women; learning to spin and to weave. (*d*) Clothing: cloth instead of skin; long, flowing garments unsuitable for hunting or more active labor; weaving of carpets; starry patterns. (*e*) Shelter: the tent; "opulence of the pastoral East: maid-servants for the children and men-servants for the flocks; horses and asses, tents and carpets, changes of raiment, weapons and jewels, camels to carry

the whole." (*f*) Exchange: contact with other tribes, or with agricultural people; barter of wool and carpets for weapons and tools; the caravan trade, caravaneer a young man, strong for protection and keen in trade; beginnings of commerce. (*g*) Stories of Abraham, Isaac, Jacob, David. Christmas stories. (*h*) Expression: Mr. Duncan suggests the following scenes for blackboard sketches: shepherd protecting flock from men or beasts; the lost sheep; shepherd carrying sheep, gathering the lambs with his arm; shepherd gathering sheep together; "shepherds abiding in the fields by night;" watching the stars; patriarch and tribe wandering on grassy plains; striking tents; patriarch among his children, blessing the caravaneer, who is departing; tent life, mother and babes, old woman weaving starry-patterned rugs; sheepfold; washing, shearing, carding, spinning, and weaving; shepherd rescuing sheep from cleft in the rocks; round-up of cattle on the great plains; sheep following shepherd; "green pastures and still waters;" flocks with shepherds and dogs going up the mountains to feed; night, showing loneliness of shepherd; flock protected and watched by dogs; shepherd going in search of lost sheep; part of flock pursued by wolf, shepherd going to rescue; mother spinning, children listening to stories told by grandfather; flocks coming home at night; goat-herd with goats on rough hillside; Apollo watching the flocks of Admetus; cowboys herding long-horned cattle in Texas; Scotch shepherds driving flock to fold in face of storm; Girth, the swineherd; milking the deer; Scottish songs: "Come a' ye jolly shepherds;" "Ca' the yowes."

5. Comparison of people in the shepherd stage with the hunter and the farmer.

6. Civics: Water supply and illumination.

REFERENCES: "A Suit of Clothes," *Harper*, Vol. LXXX, p. 685, 1890; Mason, *Woman's Share in Primitive Culture;* Shaler, *Domesticated Animals;* Geddes, "Flower of the Grass," *The Evergreen*, summer, 1896; Leate, "The Shepherd's Midnight Mass," Littell's *Living Age*, Vol. CCVIII, p. 185; "The Shepherds of Olympus," Littell's *Living Age*, Vol. CCXVIII, p. 881; "The Northern Shepherd," Littell's *Living Age*, Vol. CXLVI, p. 407; Sven Hedin, "With the Shepherds of the Khotan-Daria," *Through Asia*, Vol. I, p. 602; Baldwin, *Old Stories of the East; Old Testament Stories in Scripture Language*, "Riverside Literature" series, No. 46; Beale, *Stories from the Old Testament;* Andrews, *Each and All;* Keary, *Dawn of History*, chap. vi; Knox, *Boy Travelers in Egypt and the Holy Land.*

THIRD GRADE.

Cooking is the occupation that we shall take as the first and, perhaps, the main center for the history of the third grade.

OUTLINE OF WORK.

1. Handwork: cooking; gardening; making of pottery.

2. Present methods of obtaining food; visit a farm and also groceries and bakeries; enlarge the picture of the farm to that of the corn and wheat belts of the country; methods of transportation of food stuffs; grain elevators.

3. History of agriculture. (*a*) Kind of country suitable for farmers; compare with pasture lands; necessity for fertile soil; picture a river valley, the river used as a means of communication. (*b*) Food: methods of obtaining food with primitive tools; history of the plow and other agricultural implements; history of the mill; early methods of cooking; making pottery; stories of famous potters and stories from the decorations of Greek vases. (*c*) Shelter: permament homes; beginnings of architecture; forms of stone houses; forms of brick constructions; homes of other lands. (*d*) Social organization: individual family; ownership of property; the homestead: the pasture; the arable land; beginning of cities.

4. Civics: study of methods of transportation; stories of great sailors and explorers.

REFERENCES: Heck, "Agricultural Machinery," *Iconographic Encyclopædia*, Vol. VI, p. 177, plates 1–8, 56–60; Small and Vincent, "The Family on the Farm," *An Introduction to the Study of Society;* Knight, *Mechanical Dictionary;* Abbott, *Primitive Industry;* "A Visit to a Wheat Farm," *Carpenter's Geographical Reader, North America*, p. 164; Parker, *Uncle Robert's Geography*, Vol. II, chaps. vii, viii, x; Chase and Clow, *Stories of Industry*, Vol. II, p. 92; *Baldwin's Fourth Reader* (Haymaking), pp. 55–62; Binns, *The Story of the Potter;* Payne, *History of America*, Vol. I; Viollet-le-Duc, *Homes and Habitations of Man in All Ages;* Regozin, *Chaldæa;* Voorhees, *First Principles of Agriculture;* Keary, *Dawn of History*, chap. viii; Starr, *Some First Steps in Human Progress;* Smith, *Ancient History of the East* (Egypt); Wilkinson, *Ancient Egyptians*, Vol. II, pp. 377–429; Rawlinson, *Ancient Monarchies*, Vol. I (Chaldæa); Morris, *The Aryan Race;* Hearn, "The Aryan Family;" *Britannica*, article on Architecture; *Journal of the Anthroprological Institute;* Butterworth, *The Growth of Industrial Art.*

APPLIED MATHEMATICS.

GEORGE W. MYERS.

ELEMENTARY MATHEMATICS IN ASTRONOMY.

WHEN it is admitted that the study of geography should begin with a study of the pupil's environment, it should not be forgotten that environment is not determined solely from proximity of place. Many of the most important facts and teachings commonly included under the heading geography cannot be understood in any other than a merely verbal way without an appeal to phenomena usually thought of as being too remote from the pupil to constitute a part of his environment. If by environment we mean, as we should, whatever lies so closely within the range of the pupil's senses as to make a direct appeal to his

consciousness, we must include in elementary geographical work a study of the more obvious phenomena of the sky.

The only satisfactory way to impress a pupil with the earth's form and movements is to direct his attention to the changes on the sky which are due to these facts and which are spread out before him at just the time he can best afford to study them. Such phenomena as the rising and setting of the stars, the gradual slipping of the constellations toward the westward as the seasons come and go, the shifting of the positions of the moon and brighter planets among the stars from night to night and from week to week, are continually before his eyes, and would arouse a world of thought and inquiry within him, if he could be guided a little here and there until he learns *what* and *how* to observe. The mental soil thus created will be found to be fertile for the contemporaneous or later teachings and interpretations of geography, while, at the same time, he is acquainting himself with a field unequaled for the number, range, and variety of opportunities for scientific verifications and interpretations that will be of lifelong interest and benefit to him.

Many object to such work, thinking that it is too difficult for the elementary pupil. This objection is, we have noticed, usually urged on theoretical grounds, or by those who have never undertaken to do such work themselves. It should be said, however, that the difficulty will be great or small, pretty much as the teacher makes it. But quantitative accuracy is not the object to be attained. For example, in the study of the constellations, only a few (two or three) stars in each, should be attended to at first, unless they fall into simple figures, and then, at first, only these figures. Moreover, *not too much* memorizing of names and mythological lore should be indulged in.

The object of the work is a first-hand familiarity with *what* actually takes place and *how* it takes place. So far as the pupil himself raises a question as to the reason for the observed occurrence, he should be led to look for the reason in his notes. Occasional suggestive questions from the teacher, not too many, may be helpful. But just here the German pedagogical maxim, "Never tell the pupil anything," may easily be overdone. It

should be construed to mean, "Never tell the pupil anything he can discover for himself in a reasonable time from the facts he has." This does not have the epigrammatic ring of certainty and finality of the terser form of statement; but it is far less dangerous in the hands of the average teacher.

The aim of the outline which follows for this month is to acquaint elementary and secondary teachers with the part of the sky needed to study the planetary and lunar movements; to explain such questions as the form, rotation, and revolution of the earth, day and night, changes of the seasons, etc., which arise early in the geography.

I. Using the sketches on the board, identify from your homes:

1. The dipper in the Great Bear (Ursa Major).
2. Polaris and dipper in Lesser Bear (Ursa Minor).
3. Cassiopeia's Chair (use the imperfect W).
4. Lyra by triangle and parallelogram.
5. Scorpia, by Antares and starry arch.
6. Sagittarius, by inverted dipper.
7. Carefully plot the two very bright objects in this constellation with reference to the surrounding stars. How far apart are they in degrees? Continue this at intervals of a few days during the quarter.
8. Undertake to identify, with the teacher's aid, the constellations on the eastern horizon as soon after sunset as possible. Repeat this from month to month.

II. Discussion of the foregoing observations.

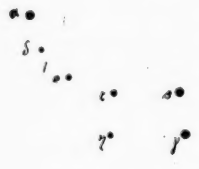
III. Return to the dipper in Ursa Minor for standards of stellar brightness. Fix this figure in mind so firmly as to be able to find it readily in any position. For purposes of comparison and description stars are distinguished in the following obvious particulars: (1) as to brightness, (2) as to color, (3) as to steadiness of light, (4) as to their diurnal movements.

1. Astronomers group the 14 brightest stars in the sky into a class by themselves and call them *first magnitude* stars. The next 50 are said to be of the *second magnitude* class. The next 150 constitute the *third magnitude* class; the next 315, the *fourth;* the next 850, the *fifth;* and all the fainter ones, still within reach of the naked eye — about 2,000 of them — make up the *sixth magnitude* class.

It is important to obtain a notion of the brightness of a first, second, etc., magnitude star with sufficient definiteness to enable one to decide at once to which class a given star belongs. To do this it is necessary to have in mind certain type stars of the various classes. The beginner may then refer to these standards and will have little difficulty in making up his mind as to which standard a given star stands nearest in brightness.

Vega, Capella, Arcturus, Antares, Aldebaran, Altair, Betelgeuse, Rigel, Regulus, Procyon, Sirius, some one or more of which can always be found, may serve to furnish an idea of the brightness of first-magnitude stars. Vega, Arcturus, and Procyon are good standards.

For the remaining classes it will be best to make use of the dipper in Ursa Minor. The star marked α (alpha) in the adjoining group is Polaris, which with β (beta) will furnish standards for second-magnitude stars. Star γ (gamma) is a typical third-magnitude star. Beta and Gamma are the guards of the pole. Delta (δ), Epsilon (ϵ), and Zeta (ζ) are of the fourth, and Eta (η) is of the fifth magnitude. Any star fainter than the fifth magnitude, and still visible to the unaided eye, is of the sixth magnitude.



With a little practice, a student can readily distinguish smaller gradations of brightness than half magnitudes. He is soon able to do better than this. A star lying in brightness about midway between the typical first- and second-magnitude stars is said to be of the 1.5 magnitude. So also we have stars of the 2.5, 3.5, 4.5, etc., magnitudes. And so, if the light of a star seems to be about half-way between a 2.5 and a third-magnitude star, it is said to be of the 2.7 or 2.8 magnitude, etc.

Exercise.—(*a*) Arrange the seven stars of the dipper in Ursa Major into an orderly sequence, the brightest coming first, the next second, etc. Designate the stars by the letters of the Latin alphabet, (*a*, *b*, *c*, ...), *a* being the star at the remote end of the handle, *b* the next, etc., for purposes of clearness of record. Or write the magnitude number beside the star in a rough, though legible, sketch. (*b*) Attach magnitude numbers (by estimate) to all the stars in the accompanying sketch.

2. The stars differ very markedly among each other in color. For example, Antares and Aldebaran are *red* stars; Capella is white; Vega, blue; Arcturus, yellow; etc. Estimate and record the colors of the individual stars of the groups studied above. Does the same star always seem of the same color? Estimate the colors of the visible planets in terms of star colors. Does the opera glass seem to affect the color of a star viewed through it? How?

The following numerical color scale is in use among astronomers: 0, pure white; 1, bluish to yellowish white; 2, yellowish white; 3, yellowish; 4, pure

yellow; 5, straw yellow; 6, orange; 7, golden yellow; 8, reddish; 9, copper red; 10, pure red.

Which of the numbers of this scale most nearly applies to each of the stars in the groups studied above?

3. As to steadiness of light there are also great differences among stars. To bring this fact out, make a protracted comparison of Algol, β Lyræ, or Mira with other bright stars about them. Can you prove a variation of their light from your observations?

IV. To find the law connecting the distance of the observer with the apparent size of an object. (See Experiment VII, *Elementary Experiments in Observational Astronomy.*) (1) By measures of angular dimensions and of the distances of a globe or other object with the plane-table. (2) Same with the home-made transit. (3) Discuss and bring out the law indicated by your measures. (4) What mathematical ideas have you used?

V. Map the outline of a field, or pond, and locate any permanent objects upon it. Use the plane-table and home-made stadia (Experiment VIII). (1) Construction of apparatus. (2) Execute the field work. (3) Discuss and plot your data. (4) Mathematical ideas and operations used.

VI. To find the angular value of the diameter (roughly) of the moon or sun. (1) By means of a graduated lead pencil, held at arm's length. (2) By a stick placed some twenty feet from the eye. (3) By a movable sight carried along a graduated bar. (4) Check by sextant measures.

NOTE.—To observe the sun use a piece of smoked glass.

VII. From the above data and the law connecting distance with diameter (*vide* Topic IV), work out the diameters of sun and moon, supposing the sun's distance to be 93,000,000 miles and the moon's 240,000 miles.

VII. Lectures: (1) Planetary and lunar motions, with lantern slides. (2) Stars and star clusters (illustrated). (3) Tides.

VIII. Number aspects of these lectures. (1) Where should such work be put in the curriculum of the elementary school? (2) What should be its relation to the geography? to the nature study? (3) To what extent can it and should it be carried? (4) What sort of number work does it represent?

IX. Write a plan for teaching some subject covered in the foregoing outline to the grade to which you think it best suited.

X. Number aspects of foregoing work. Discuss the measures and numerical ideas involved in carrying out the foregoing outlines with reference to the following syllabus on measurement. Measurement of limited magnitude. (1) With an individual (qualitative unit). (*a*) Direct measurement (counting). (*b*) Indirect measurement (valuation). (2) With a quantitative unit. (*a*) Direct measurement (number). (*b*) Indirect measurement: (α) through relations to a unit of like kind; (β) through relations to a unit of unlike kind.

XI. Measurement of number. (1) Always with quantitative unit. (*a*) Direct measurement; (*b*) indirect measurement; units always of like kind.

APPLIED ARTS.

DECORATIVE PAINTING.

JOHN DUNCAN.

LAST month we gave a general sketch of the work we have planned for the afternoon, and we now give a short account of the process of stencil-cutting which we are to employ in its execution.

This is a craft that requires only the simplest tools. With a sheet of glass, a pocket knife, an oil stone, a drop of linseed oil and one of varnish, a piece of paper, a stencil brush, and a little calcimine color, we are equipped for our work.

Any country teacher, armed with this simple apparatus, a very little artistic skill, and a great deal of taste, can set about the decoration of her schoolroom with the happiest auguries of a successful issue to her labors.

There is all the difference in the world between a stencil made by a perfunctory house painter—and most of them, alas, come under this description—and a stencil made by one who makes it for the joy of it.

The process is as follows:

First the design is drawn out. Then the artist decides how many stencils will be employed to produce the desired effect. Say we use three, as in the accompanying illustration, Plate III.

The whole surface to be covered by the design may be laid in with a light color—in our illustration this is represented by the white paper.

The background, a color let in, is planned so as to allow the light ground color to show all around the pattern. Compare figs. 1 and 4.

The outline of this background is traced from the sketch design to a piece of stout cartridge paper. The paper is then washed over on both sides with linseed oil, which is allowed to soak in for an hour or two. The work is then ready for the cutting of the stencil.

It is laid upon a sheet of glass and cut with a sharp-pointed knife—a pocket knife is admirable for the purpose. If the paper has been well saturated with oil, and the knife is kept with a very keen edge (it is, of course,

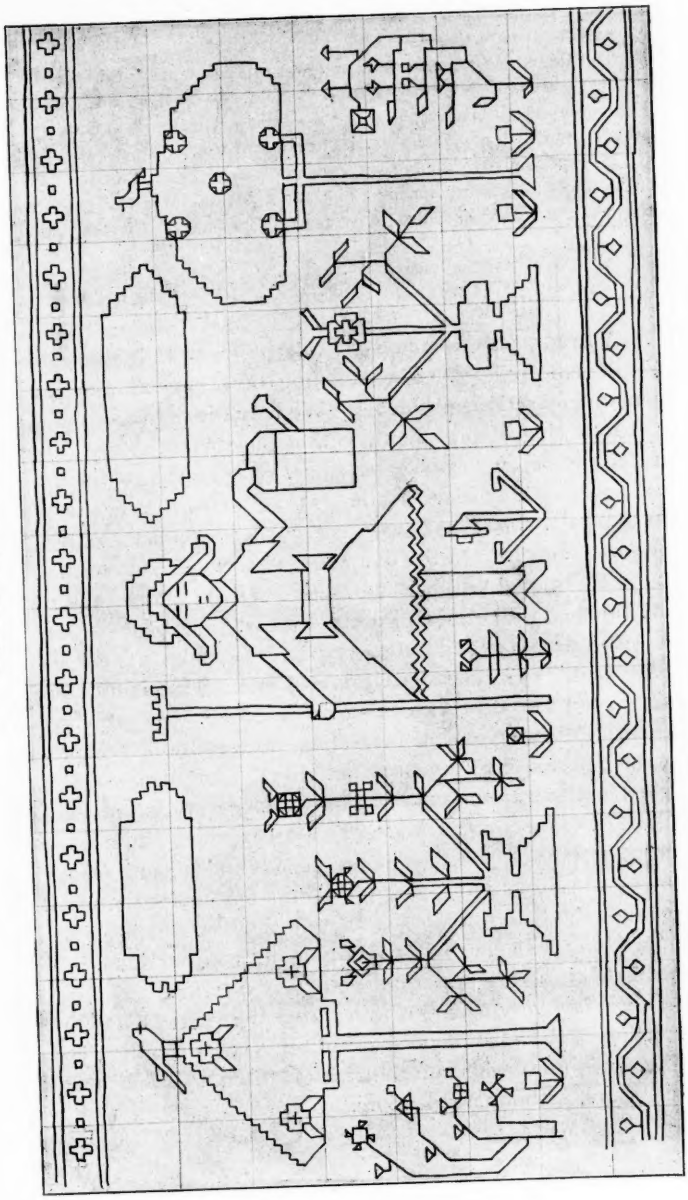


PLATE Ia.

necessary continually to refresh the edge of the knife upon an oil stone), the paper will cut very freely.

The stencil is then varnished in order to keep it stiff and flat; the edges otherwise are apt to curl. Japanner's gold size is used for this purpose. The stencil had better be put under a weight while the varnish is drying, to prevent its twisting. When dry it is ready for use.

It is printed by dabbing with a short-haired brush which is flat on the end. The calcimine color must not be too fluent, else it will get under the edges of the stencil and blot.

DESIGN.

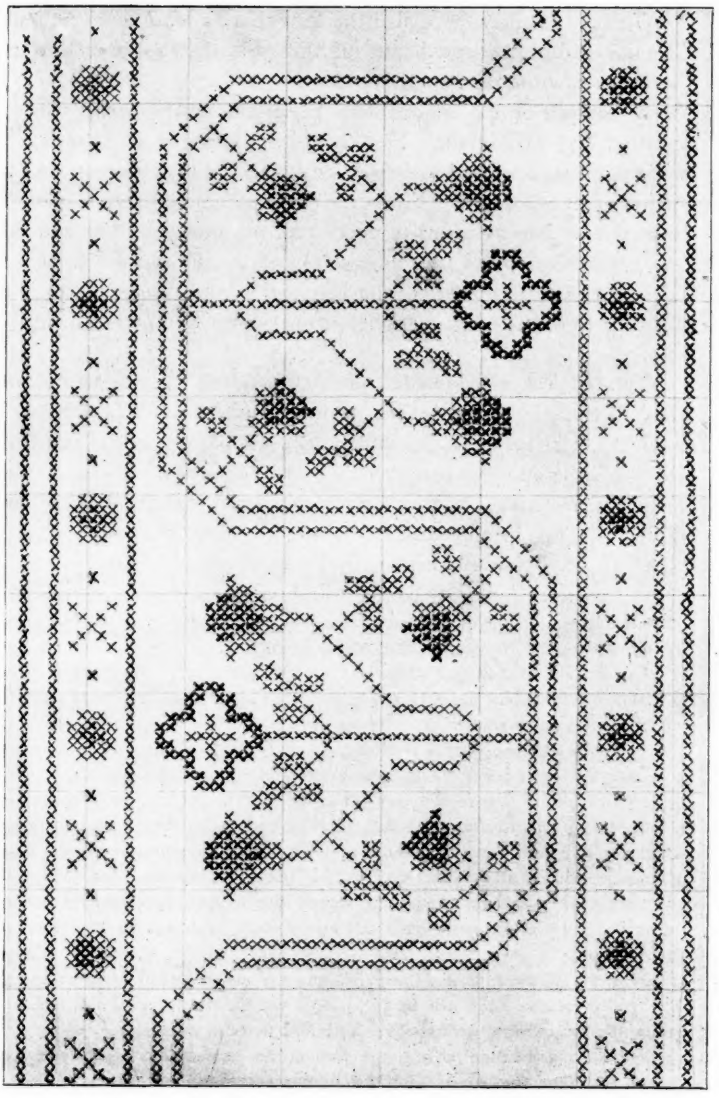
JOHN DUNCAN.

A LARGE part of our time will be given to the designing of Christmas presents. The teaching of ornamental design presents many serious problems. We may insist too strongly upon the following of precedent, so that the student's every design is a rehash of outworn conventions, or we may go to the other extreme, and, by leaving him ignorant of all that has been done in the past, abandon him to the uncanny guidance of a will-o'-the-wisp fancy. On the one hand, we are not content merely to copy traditional patterns, nor, on the other, to open the door to all kinds of wild and disorderly dreams.

No one can of himself say, "Let us make a new style of ornament," and immediately invent one. That is no more possible than to invent a quite novel machine. All arts grow by experimenting upon and perfecting the results of work that has gone before. The style of individual designers looks unique when we are ignorant of the influences that combined to make it. The most creative of designers does little more than orchestrate elements that he finds ready to his hand, fusing them under the direction of his taste into harmonious wholes. Or perhaps the better analogy is that of the lily, which builds itself up entirely with the materials about it, making them, however, (and this is a very important point) *all into lily*.

This is a very different thing from the vulgar borrowing and stealing of the finished products of others; the student, jackdaw-like, dressing out his colorless imagination, a feather here and a tuft there, with alien splendors.

PLATE 18.



We then frankly recognize the fact that *ex nihilo nihil fit*, and take our children to see beautiful things in the museums and in the down-town stores.

A number of excursions has been planned for the winter months: (1) To Marshall Field's and Schlesinger & Mayer's, to study the patterns of oriental rugs and embroideries. (By means of these we are brought into contact with the storied East, which has given us in every age all our religions and all our ornamental art at the same time.) (2) To Burley's, to see the output of the potteries, the Rookwood and others. (3) To the Tobey Furniture Co.'s store, to see fine specimens of furniture.

The teacher will improve these occasions, attempt to rationalize all that the children see, pointing out the connections and tracing the histories of the various art industries, and to investigate as far as may be the sources of the beauty of these things, calling upon the children to discriminate carefully between things that are fatuous and unlovely and those that are the outcome of that wisdom which includes the love of beauty.

The designs herewith are intended as suggestions that may or may not be carried out. Some may be done in their entirety as they appear here, some only in part, and some not at all, as it may be.

The derivation of a few of these designs is obvious—Persian or Celtic. Others are inspired by the old samplers of our grandmothers. Others still are "poor things, but our own."

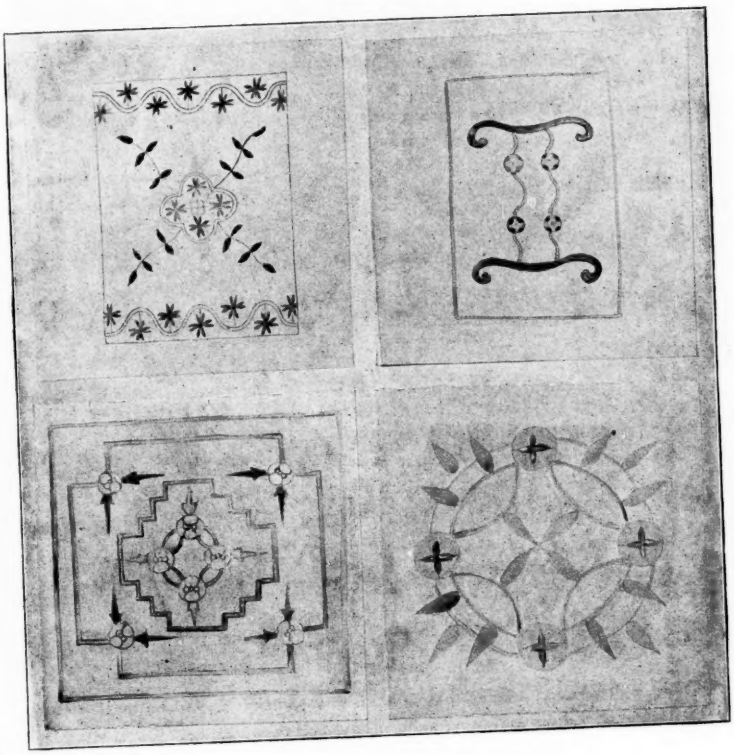
The cross-stitch patterns (Plates I*a* and I*b*) are meant to stimulate the invention of new ones. Our great-grandmothers enjoyed many an hour designing delightful grotesqueries—heaped baskets of the most luxuriant flowers and fruit, strange birds and strange beasts, gardens with cypresses, peacocks, and fountains, shepherds and hunters and farmers. By the time of our grandmothers the art had grown rank; Berlin wool had banished silk; a mistaken zeal for realism destroyed the happier invention of earlier days; the sampler strove to rival the oil-painting, and lost its own soul in the attempt.

Figs. 1 and 2 on Plate II are designs for embroidered blotter covers. The colors of the silks are bright, not to say startling—gold and emerald green and ultamarine, with touches here and there of crimson.

Fig. 3 is a cushion cover; the foundation is old rose; the flowers, a deeper red; and the leaves, a mild golden green.

In Fig. 4 the flowers are of various shades of lavender, with centers of

PLATE II.



FIGS. 1, 2, 3, 4.

pale Persian rose color. The lines are of Japanese gold and the leaves viridian.

For fuller description and working drawings of Plate IV see Mr. Carley's article, which will appear in January. The little medicine cabinet at the top of the page is meant to be executed in dark stained oak, with copper fittings and ornaments, the edges of the wood well rounded off, and the curves carefully drawn by hand to give them a sympathetic quality that cannot be obtained by any mechanical means.

Fig. 5 is a calendar made of dark-colored wood studded with copper nails. The heart shape is cut with the fret-saw. Figs. 3, 4, and 6 are hanging frames decorated in the same manner.

Plate V is a design for a footstool; the carving is in very low relief; the surface of the wood sunk only far enough to relieve the pattern, nowhere more than three-sixteenths of an inch, and only where it meets the pattern.

TEXTILES.

CLARA ISABEL MITCHELL.

SUGGESTIONS FOR CHRISTMAS WORK.

FIRST GRADE.

1. Weaving: Holders for hot dishes or teakettle; small mats. Materials — heavy wool or cotton yarn; wool or cotton roving. Cross-stitch: Needle books; holder. Materials — coarse canvas, embroidery silk, wool or worsted yarn. 3. Beads or cross-stitch: pen wipers; blotters; comb plaster cases. Materials — leather, coarse beads, and rope silk. 4. Basketry: baskets; bags. Materials — rattan, Indian splints, raffia, bamboo, all colored and uncolored.

NOTE.—Most of these baskets must be begun by the teacher or the older students.

SECOND GRADE.

1. Weaving: as above, in more difficult design; small bags. 2. Cross stitch: button bags; book bags. Materials — coarse canvas; railroad canvas over linen or denim with silk, worsted, linen or cotton threads. 3. Coarse satin stitch and outline stitch: small squares for table or bureau. Materials — art linen or brown linen, and silk or linen threads. 4. Beads: bags. Materials — railroad canvas and large beads. 5. Basketry: baskets and bags. Materials — braided raffia; rattan and braided raffia.

THIRD AND FOURTH GRADES.

1. Weaving: mats and scarfs of silk, or wool rugs with cotton carpet warp. 2. Cross-stitch: work bags; pin-cushion covers. Materials—linen and silk, or linen threads. 3. Satin stitch, outline stitch; dust bags; book bags; work

PLATE III.

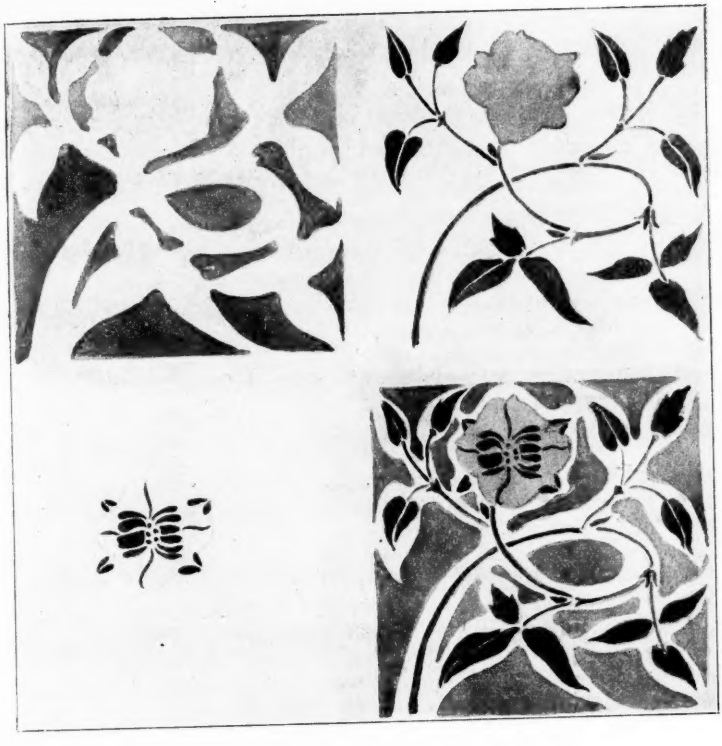
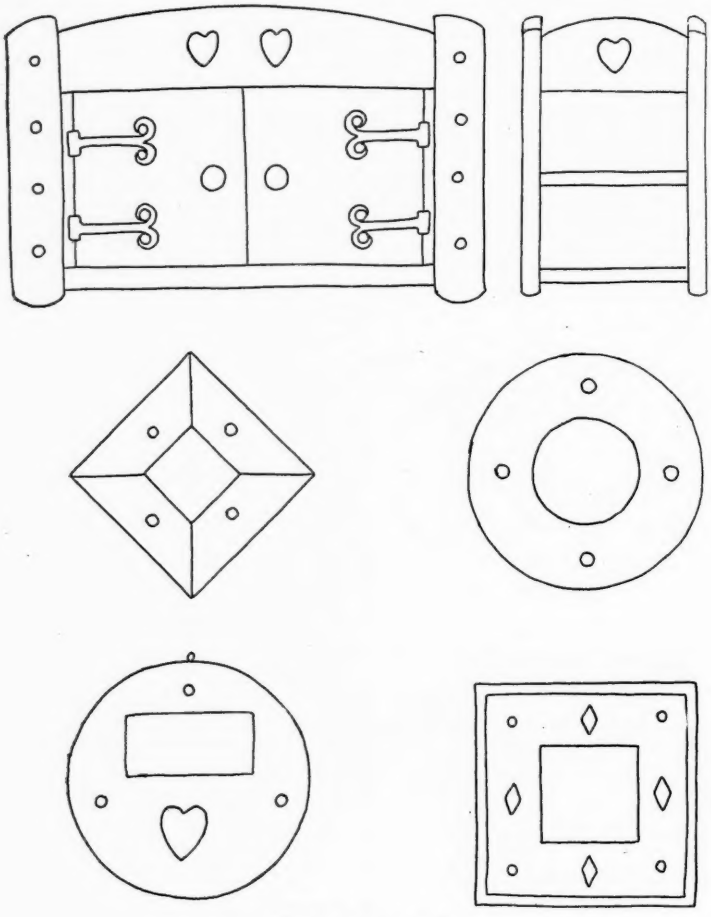


PLATE IV.



FIGS. 1, 2, 3, 4, 5, 6.

bags. Materials — linens; heavy cottons, as denim, duck, or canvas; silk, worsted, linen, or cotton threads. 4. Basketry as above, with simple original designs in color. 5. Leather: Indian calendars. Materials — leathers; beads; oil paints.

FIFTH AND SIXTH GRADES.

1. Weaving: small rugs; covers for floor cushions; rag rugs. Materials — wool yarn or roving; cotton carpet yarn for warp; burlaps with cut wool or silk rags to pull through.

2. Cross-stitch: book covers (linen); laundry bags (linen, cotton, duck, or denim); aprons (linen or cotton, duck); stick pin holders (ribbon).

3. Satin stitch, outline stitch, button-hole stitch: book covers; bags; doilies; stick-pin holders; chatelaines for sewing.

4. Beads: tobacco bags; lamp mats. Materials — leathers, beads, and oil-paints.

5. Basketry: as above, making larger baskets of more elaborate designs and weaves.

SEVENTH AND EIGHTH GRADES.

1. Weaving: covers for couch cushions (cotton warp, worsted filling); strips for bags, needle-book covers; purses (silk warp and filling).

2. Cross-stitch: squares for table or bureau, scarfs for piano; bags. Materials — linen and silk or linen threads.

3. Satin stitch, outline stitch, chain stitch, button-hole stitch: screens; table covers; curtains; borders for curtains; bands for shirt-waists; coverlets; pockets (silk, velvet, beads, and embroidery silk).

4. Appliqué: pillows and cushions; bags; book covers; pockets.

5. Basketry continued.

WHERE MATERIALS MAY BE OBTAINED.

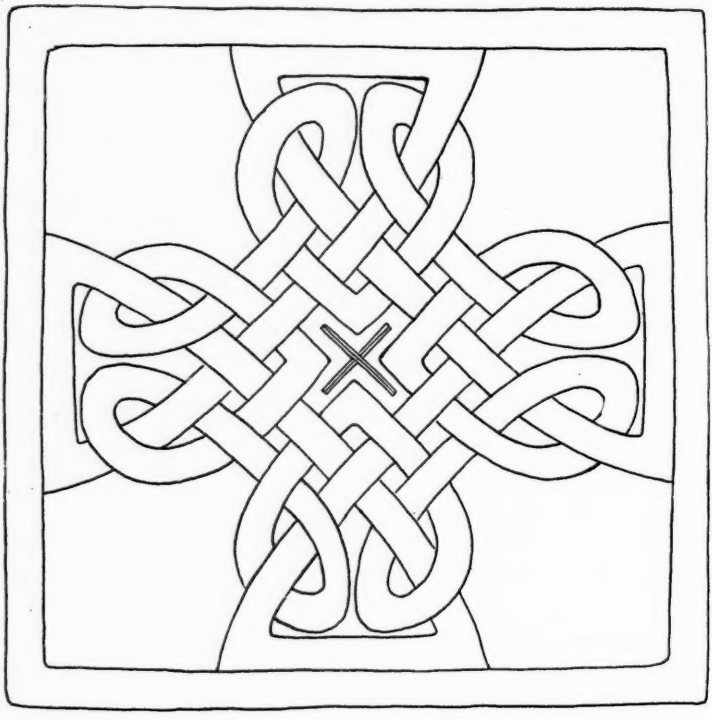
Raffia may be bought at Vaughan's Seed Store, 84 Randolph street; at Marshall Field's; of the Home and School Decorative Co., Fine Arts Building; all of Chicago. Colored raffia and rattans of all sizes are to be had from the Home and School Decorative Co., as well as wools of various sorts; wool and cotton roving, in limited quantities, from the Mansure Manufacturing Co., Lake street and Michigan avenue, Chicago.

Heavy carpet yarn, by the hundred pounds only, from John Bromley & Co., Lehigh avenue, below Front street, Philadelphia. All shades can be found there, but only in lots of not less than ten pounds.

Indian splints, at $1 per pound, from George D. Mitchell, Indian Island, Oldtown, Me. Bamboo, from Wakefield Manufacturing Co., Chicago.

Art linens, embroidery silks, and canvasses, from Marshall Field; leathers, from Slade, Hipp & Meloy, 139 Lake street; vegetable dyes, from Robert Stevenson & Co., 92 Lake street, all of Chicago.

PLATE V.



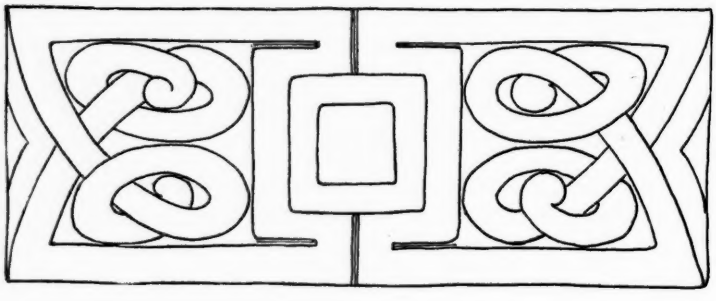
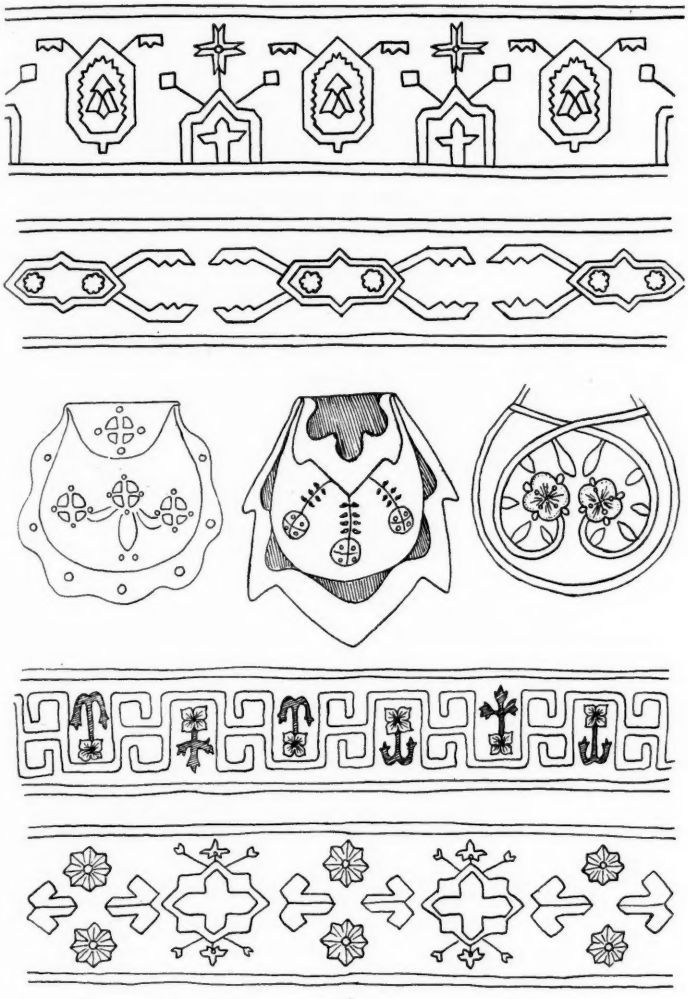


PLATE VI.



EMBROIDERED POCKETS AND EMBROIDERED APRON BORDERS.

REFERENCES: Hummel, *Dyeing of Textile Fabrics;* George Wharton James, *Indian Basketry;* Lewis F. Day, *Art in Needle Work;* Paulson, *Art and Craft of the Needle.*

POTTERY.

ANTOINETTE B. HOLLISTER.

THE following simple directions for making pottery are given in answer to inquiries too numerous to answer individually.

The clay used in the School of Education is purchased from A. H. Abbott, 48 Madison street, Chicago. It is, however, quite ordinary clay, such as is found in almost every state in the union, and it would be well to experiment with the clays that are near at hand before sending for this particular kind.

The clay may be kept in zinc-lined box, or, if a small quantity only is needed, in a stone jar. A thoroughly moistened cloth laid over the clay will keep it in perfect condition. Unfinished work may be kept soft by a cloth covering moistened every morning.

Before the children begin to model it is well for the teacher to have them prepare a careful drawing of the object they wish to make, and also to draw and color the design, if any, with which the object is to be ornamented. The piece of pottery in hand may then be built up of soft clay, tools being used if necessary. At this stage, when it is ready for decoration, it must not be allowed to dry.

The mineral paints come in the form of a coarse powder, which must be thoroughly pulverized in a mortar before they can be used. When pulverized, they are mixed with slip and applied to the object with a brush. Slip is made of the same clay of which the object has been modeled. The clay is softened by mixing with water, and when quite soft is squeezed through a piece of fine linen lawn.

When painted, the pottery is allowed to dry, and when perfectly dry it is fired. After the first firing the glaze is applied. The powdered glaze is mixed with water to about the consistency of cream, and into this mixture the pottery is dipped. When completely and evenly coated, it is returned to the kiln and subjected to a heat sufficient to melt the glaze. The moment at which the glaze melts is observed by watching the firing process.

SPEECH, ORAL READING, AND DRAMATIC ART.

MARTHA FLEMING.

THANKSGIVING EXERCISES.

FROM the subjects given out for study in the November number the children decided to represent certain features of

the following Thanksgiving festivals: the festival of the Iroquois Indians; finding of the grape by Dionysus; Greek festival; the English Harvest Home; a Bavarian harvest custom; a vintage custom of France; the first Thanksgiving in America.

Observations were made, stories read, and poems studied by the children on these subjects until they were thoroughly in the spirit of the people and the times that they were to represent. These were followed by discussions and plans for presentation. Many of their plans the children found it impossible to represent with our limited space and meager appointments. Where dialogue was necessary, they wrote it. They also discussed the staging of their work and helped to costume the characters.

The program opened with music by the school: "I Will Praise Thee" and "Come Thou, Almighty King." The Feast of the Tabernacles. Reading: law of God to the children of Israel, Lev. 23:39–43. Singing of "We Plow the Fields," by the school, followed by a short prologue, which may be taken, in the main, from the article on Thanksgiving in the November issue.

THE IROQUOIS FEAST.

On a stage, covered to resemble green grass, a fire is burning. Indians and squaws are about it in a circle. The priest comes forward to the fire, thanks the Great Spirit for the plentiful harvest of fruits and for the fish in the water and the game in the forests. He then throws tobacco on the fire, praying that his words may ascend as do the smoke and flames.

The curtain is drawn and rises again upon the same setting; the squaws are sitting on the ground beating time; the men enter, dancing to this weird music, and circle about the fire. During this dance one squaw after the other offers a short prayer to the Great Spirit.

FINDING OF THE GRAPE BY DIONYSUS.

Dionysus enters and moves gracefully through the trees which are set in the background. He is speaking of the autumn and its beauty. One of the trees is covered by a grape vine on which the purple clusters are hanging. He stops to rest by this tree, and as he leans against it he presses one of the bunches with his shoulder, and the juice of the fruit stains his arm. He turns, touches the crushed fruit with his finger and tastes, cautiously at first, then over and over again, and he finds that it is sweet and apparently wholesome. He looks at the tree and sees that it is covered with this vine and the berries.

Next he examines the soil in which it grows; he picks a bunch and begins to eat.

Silenus is now heard calling to Dionysus. He soon appears in the background. Dionysus goes to meet him and shows him the grape and the tree, then plucks a bunch and offers it to him; during this time they talk together about the fruit. They call the nymphs, who come running on; Dionysus shows them the grape and the tree. The nymphs study the tree and the fruit, and, seeing Dionysus and Silenus eating, they ask for some. Dionysus carries a cluster of grapes high above his head, playfully holds the nymphs off and runs away, followed closely by the company. At last he mounts a fallen tree, holds the grapes above their grasp, and they strive to reach them. Meanwhile the satyrs have appeared in the background, and, seeing the nymphs catching in their mouths the drops of juice which fall from the hands of Dionysus, they scramble up, and rudely tumble each other about in an effort to get a taste of the juice.

Here Dionysus finds in surprise that the bunch is squeezed dry; he shows it to them, and all run to the tree for more. The nymphs and satyrs watch. Dionysus gives each one some of the grapes; all eat with great enjoyment, the satyrs playing tricks on each other with the grapes. The nymphs propose to take some of them home, and one runs for a basket, the others eating and watching. Dionysus fills the basket, one of the nymphs holding it, and at the same time speaking praise to Dionysus. Dionysus moves off the stage, the nymphs dance after him, chanting a song of praise. The satyrs, still munching grapes, move off clumsily.

THE GREEK FESTIVAL.

In the center of the stage is a mound of sod which two men are piling up into an altar. As they work they speak of the abundant harvest and of the ceremonies of the day. When the altar is completed two young women advance, carrying wreaths, vines, and flowers, with which they decorate the altar. The men lay on their offerings of fruit and wine. Soon they hear the approaching procession, and all move off to join it. The procession is led by young women dancing to the sound of cymbals and the flute. They are followed by children, men, and women. Each carries an offering and bears a torch or a staff tipped by a pine cone. As they dance about the altar they lay upon it their offerings. The priest, attended by little children, advances slowly from the background; he arranges upon the altar the offerings, pours a libation of wine, and kindles the sacred fire, and then offers up a prayer of thanksgiving. All the people raise their hands and express in movement and attitude their thanks to the gods.

THE ENGLISH HARVEST HOME.

Before the curtain rises, the merry voices of the harvesters are heard singing, "Jog on, jog on." The scene opens on a harvest field. The children

are gaily dressed in the country costume of about the sixteenth century. At one side of the stage is a cart of which the back part only is visible. The cart is being piled with grain. Two men are tossing the bundles of grain up to the one on the cart who is building the load. Others are scattered about the field, tying the bundles and carrying them to the wagon. The women are raking the scattered straws and grain together. Some children are near, making wreaths. All work this way until the song is finished, when one suddenly darts across the stage, picks up a bundle, holds it high over his head, and cries: "The last sheaf! The last sheaf!" All cheer, and the sheaf is set in the middle of the field. The harvesters arrange themselves on one side of the stage and begin to throw rocks and sticks at the sheaf, and the one who knocks it over is proclaimed leader of the games. The queen of the harvest is then chosen. One of the girls is named by acclamation, led out, crowned, carried by the boys to the cart, and placed upon it. Around her they pile their fruits and flowers. The games now begin. The queen watches and finally rises to cheer the players. These games are followed by an old English dance, led by the leader of the games and the queen.

A VINTAGE CUSTOM OF FRANCE.

(The scene is laid in a vineyard, the foliage of which was made by the children of paper and wire. The poles were made in the manual-training room.)

First a boyish face appears in the background, peering cautiously around. When he sees that no one is there, he comes in and looks about through the vines. Finding no one, he calls in French to his comrades to come. A troop of children now comes upon the stage, peering about and running out and in among the grape vines. At last one cries "*jouons* 'Sur le pont d'Avignon.'" (See French outline in October number.) This play consists of singing, dancing, and pantomime. In an interval of the play the song of the vintagers is heard in the distance, it comes nearer and nearer, and the children scamper quietly away, and the vintagers enter. First the girls appear with baskets, each girl takes one row of grapes, singing as she works. The men now come on with large baskets on their backs. Each girl empties her basket into one of these, and all are carried to a vat which has been placed at one side of the vineyard. Soon the vines are cleared, and the men begin to search them to see if any grapes have been left ungathered. The girls watch anxiously, for, should a bunch be discovered, the forfeit is a kiss taken by the finder from the one who missed the grapes. One of the men holds up a bunch, and there is a scream of delight on one side and of dismay on the other. A race for the forfeit ensues. The curtain drops before the girl is caught, and the rest is left to the imagination of the audience.

A BAVARIAN HARVEST CUSTOM.

The scene opens upon a stage, in the center of which one sheaf of grain is standing. A priest enters, reading. He moves slowly across the stage,

pauses in front of the sheaf, lifts his hand in blessing, walks on, and seats himself on the opposite side. A woman now enters, sister of the priest and a teacher from Bayreuth. She has come to visit her brother and is looking for him. She almost stumbles over the solitary sheaf; the sheaf seems to surprise her. Soon she sees her brother, and after the greeting is over she inquires about this sheaf. He explains that it is the custom of the people to leave one sheaf in each field for the poor. As they talk, the farmer approaches. The priest introduces his sister and asks the farmer to explain to her more fully about this sheaf. All the conversation is carried on in German. The farmer soon leaves to prepare, as he says, the food and drink for the feast that is held at the close of the harvest about this sheaf.

The harvesters enter, singing "Wir pflügen und wir streuen." After the song is finished, the farmer makes a speech, thanking the laborers for their faithful work, and promising to dedicate a candle to the holy saint who has helped them to gather the grain. He calls them to be merry and to dance and sing and eat about the sheaf that is to be left for the poor. In this dance they are led by the farmer and the priest's sister. After the dance they all seat themselves about the sheaf, and when the curtain drops the farmer is passing about the bread and sausage and drink.

THE FIRST THANKSGIVING IN AMERICA.

SCENE I.

(*Scene:* Fort at the back of the stage and to one side. Plymouth village street suggested by a background made by the children.)

When the curtain rises, a weary sentinel is pacing up and down. He pauses often and looks and listens. Presently he hears a soft, bird-like whistle, which, after a moment, is repeated. The sentinel recognizes it as the Indian call and gives the alarm. Soon the soldiers from the fort, the governor, elder, and other Puritans are with him on the stage. The Indian whoop is heard close at hand, and Massasoit, Samoset, Squanto, and other Indians appear, bearing presents for the Puritans. They are received and welcomed by the governor. The soldiers build a fire; all seat themselves about it, and the pipe of peace is smoked. They now proceed to entertain each other with games, in which both Indians and Puritans take part. High jumping, racing, and arrow-shooting are followed by a drill of Miles Standish's men. The race is first between two white men, then between two Indians, and lastly between the victors in the two first races. The jumping is managed in the same way, the lookers-on announcing the victor. The governor rises, and the party breaks up.

SCENE II. THE FEAST.

When the curtain rises, Priscilla and the other women are busy at a long table, which they are loading with all the things prepared for the feast. (The

pumpkin pies used in this feast were baked by the children themselves in the home-economics room.) As they work, they talk together of the preceding winter, which had been so bitter, of their home in England, of the plentiful harvest that has just been reaped, and of the friendly Indian, Massasoit, and his braves, for whom this feast is being prepared.

When the table is set, Governor Bradford enters with Massasoit. Miles Standish, the Puritans, and the Indians enter and place themselves about the table. As they stand, the Puritans sing the one hundredth psalm to the tune of "Old Hundred." The curtain falls upon the feast.

A week before Thanksgiving the children were asked to bring their Thanksgiving offering of fruits, game, and other foods to the school to be distributed among others not so well provided for as they themselves. Our program closes with the presentation of these gifts. The children of the kindergarten and the first and second grades, appropriately costumed, crowned and decorated with autumn leaves, approach from the back of the room, bearing their gifts in dishes of gold, silver, and pewter. They are led in by two young girls, each bearing a sheaf of wheat. A figure, costumed to suggest Abundance, receives these gifts, and piles them up in an artistic way on the stage. After the presentation they group themselves about their offerings, and the whole school sings "Come, Children, Lift Your Voices." This is followed by the singing of the Doxology.

The music was under the direction of Miss Goodrich, Mrs. Bradley, and Miss Payne. The dances were arranged and taught by Miss Crawford.

Each grade teacher has presented her own subject and directed the children's study and plans. Herr Prokosch directed the study of the Bavarian harvest customs by the seventh grade, the dialogue and songs being in German. Mlle. Ashleman has directed the study of the French vintage scene by the fourth grade and the pedagogic class, the dialogue and songs being in French.

CHRISTMAS EXERCISES.

(Arranged by Mr. Duncan, Miss Goodrich, and Miss Fleming.)

The thought underlying our Christmas exercises is the triumph of light over darkness, of good over evil, of life over death.

Early peoples realized in story and in festival their joy in the turning back of the sun, the fount of life. The first part of the program is devoted to the solar myths of the Scandinavian, Celt, Greek, and Egyptian, given, not chronologically, but in the order of their deeper meaning.

The second part tells the story of the birth of Christ, the Sun of Righteousness, who came to irradiate the darkness of men's souls, the spiritual analogue of the material fact.

The third part is a summary (1) of the remotest past, personified here by the primitive types of hunter, shepherd, and farmer; and (2) of historic times, personified by types of the civilizations of the three continents, Asia, Africa, and Europe. Each brings his special gift to the present, to the child of today.

At the feet of the child of the present are laid all the accumulated treasures of the past, the hunter bringing the courage acquired through generations of strife with beast and man; the shepherd, the sweetness and patience born of long watching and loneliness and tender care of his flock; the farmer, the practical wisdom, foresight, and providence that come of knowledge that what a man sows that shall he also reap.

The three kings present their gifts. Asia brings his bibles (all our religions are from the East); Africa, his art (was he not the master of Greece and Rome?); and Europe, represented by Julius Cæsar, his great conception of world-citizenship.

The mother voices her hopes for her boy, acknowledges indebtedness to all the past, and corresponding responsibilities, and invokes the help of teachers and of all good men and women.

The Christmas program, as planned at present, is as follows:

PART I.

"Glory to God in the Highest."
"Joy to the World," sung by the entire school.

Chorus.

SCENE I.— Story of Balder.
SCENE II.— Story of Cuchulainn.
SCENE III.— Story of Apollo.
SCENE IV.— Story of Osiris.

PART II.

Soprano aria, "How Beautiful," from "Messiah" - - - - *Händel*
Reading of the prophecies of the Christ from the Old Testament.
Reading of the birth of Christ from Luke 2:8–14.
Soprano aria, "I Know that My Redeemer Liveth" - - - *Händel*

PART III.

THE PAGEANT OF HISTORY.

Chorus.

SCENE I.— The Hunter.
SCENE II.— The Shepherd.
SCENE III.— The Farmer.
SCENE IV.— The Three Kings. { Asia. Africa. Europe.

Chorus.

The Mother and Child.
Trio, "Lift Thine Eyes," from "Elijah" - - - - - *Mendelssohn*
Music, "O Come, All Ye Faithful," sung by the entire school.

PART IV.

THE CHRISTMAS PARTY.

The first and second grades will entertain the other children with a pantomime of "The Night Before Christmas."
The music used at this party is outlined in this number by Miss Goodrich.

Between Parts III and IV there is an intermission of an hour, during which an exhibit of the handwork of the school is inspected.

MUSIC.

HELEN GOODRICH.

THE Christmas program, so far as it can be planned at this time, is as follows:

PROGRAM.

March from "Athalie" - - - - - - - - - *Mendelssohn*
{ Sentence, "Glory to God in the Highest" - - - *Crosby Adams*
{ Hymn, "Joy to the World."

PART I.

"Balder the Beautiful" - *Eleanor Smith*, "Songs of Life and Nature"
Harp music during the Celtic myth-play.

PART II.

Soprano aria, "How Beautiful," from "Messiah" - - - *Händel*
Soprano aria, "I Know That My Redeemer Liveth" - - - same

PART III.

Trio, "Lift Thine Eyes," from "Elijah" - - - - *Mendelssohn*
Hymn, "O Come, All Ye Faithful."

THE CHRISTMAS PARTY.

"Gather Around the Christmas Tree" - "Songs of Life and Nature"
SUNG BY THE SCHOOL.
"In Another Land and Time"
Eleanor Smith, "Songs for Little Children," No. 1
"Christmas at the Door" - - - - - - - *Reinicke, ibid.*
"Santa Claus" - - *Reinicke*, "Songs for Little Children," No. 2
SUNG BY THE PRIMARY GRADES.
"God Rest Ye, Merry Gentlemen."
"We Three Kings of Orient Are" - - *Eleanor Smith* (not published)
"The Star of Joy" - - - *Brahms*, "Songs of Life of Nature"
SUNG BY THE GRAMMAR GRADES.
"Old Christmas" - - *Lorraine*, "Modern Music Series," Book II
SUNG BY THE SCHOOL.

The opening sentence will be followed by a short modulation, leading without a break into the hymn "Joy to the World." This hymn has directness and force in both words and music, and is well adapted to the needs of children in other respects. The effort in the teaching of hymns is directed chiefly toward securing intelligence in the text and such breadth of rhythmical effects as children's voices permit. "Joy to the World" will be sung rather rapidly, the tempo being decided by the length of the shortest notes, which must be sung clearly and smoothly. The enunciation must be sharp, and the whole text "declaimed" in a manner which will bring the hymn out brilliantly.

The party will open with a little program of Christmas songs. Several considerations make the arrangement in groups and at the beginning of the party advisable. The excitement of the Christmas tree, the gifts, the dancing, and the games render concentration difficult. Singing is not at present an independent, spontaneous, necessary means of expression to the children. It has been to most of them a species of pleasant exercise, far removed from clear thought or strong feeling; and only in so far as it becomes this necessary and spontaneous means of expression, and the spirit of the whole school grows more and more conformed to the law of love, will the social gatherings prove really in need of beautiful music. Now the poorest waltzes and two-steps, ending with a bout at badly written, foolish college songs, seem to satisfy us for all social occasions, but, if the music is to be put upon a basis

which makes it fit to be a part of the school work, some radical changes must come.

The arrangement in groups provides for an accumulation of interest in both singers and audience, the distinctly musical advantage consisting in the possibility of certain contrasts and progressions in the feeling of the songs which enhance the effect of each song. The primary grade children sing first a very simple, steadily moving little hymn, which quiets them and fixes the attention. This is followed, not by a violent contrast, but by a song which has a more decided forward movement and added interest, preparing the way for the Santa Claus song at the end, which is full of merriment, forming a kind of climax natural to the little children. The older children begin with a cheerful and tender little song, "God Rest Ye, Merry Gentlemen;" this is followed by the stately, "We Three Kings of Orient Are," leading up to a climax in the "Star of Joy," which has breadth and strong religious feeling. The accompaniment is very full on the *tutti*, with certain octaves in the bass which add depth and strength to the whole. The song must be sung with dignity and a sense of the enthusiasm which pervades it, or not at all.

At the end of the day's festivities we shall sing the jolly, but also thoughtful and affectionately disposed little song, "Now He Who Knows Old Christmas." This is simple enough for the smallest children to sing, and is a favorite with both old and young. It represents fairly the type of Christmas spirit of our community at present, and brings us all together once more at a common center from which we finally disperse for the holidays.

The music incidental to the dramatic part of the program will be described in the January COURSE OF STUDY in connection with Miss Fleming's outline.

KINDERGARTEN THEORY.

BERTHA PAYNE.

REVIEW FOR OCTOBER.

A STUDY of plays and games was made with the purpose of finding the elements most attractive, and of determining some of the educational features.

Each student contributed a list, and analyzed and classified the games in three ways: (1) as to elements of charm, (2) as to disciplinary value, (3) as to age to which best suited. In this way about fifty games were discussed and studied. The following illustrations show the mode of grouping:

"Follow the Leader." Interest — competition, physical action. Value — bodily control, measure of strength and skill. Age — seven to twelve years.

"Drop the Handkerchief." Interest — physical action, competition, surprise. Value — alertness, control, exercise. Age — six to twelve years.

"Ring Around a Rosy." Interest — united action, contrast, rhythm. Value — united action, exercise, rhythm. Age — two to five years.

"Peek-a-Boo." Interest — appearance and disappearance. Value — companionship, contrast. Age — six months to three years.

The last develops into games of hiding and chase.

For the study of special topics the class was divided into three committees, the result of this study to be presented to the whole class.

To committee 1 was assigned as a topic traditional games, and the origin, history, and relation to the psychology of play. This committee has not yet reported.

Committee 2 was to report on the life of Froebel, the status of school education in his time, and upon the theories of other thinkers who shared his beliefs; report will be given later.

Committee 3 took for study five of the nursery songs from Froebel's *Mutter- und Kose-Lieder*. The committee was referred to the song, motto, and picture, *not* to the commentary. Its conclusion was that Froebel attempted to use the play instinct, the tendency to imitate, and the love of rhythm and form, at the same time substituting a more worthy content for the game. The study of Froebel's play of "Grass Mowing" led to a discovery of the inherent interest in a chain of events. This was found at first to be an interest in mere succession of words or images; later, an interest in logical succession. This led to an investigation of nursery rhymes and finger games.

NURSERY RHYMES AND FINGER PLAYS.

Characteristics in form are rhythm, rhyme, repetition; in content, vividness of imagery, succession of pictures, individualization.

The game for very little children must contain opportunity for physical action, and must be simple in plot. It may depend for interest on one or more of the following qualities: (*a*) Repetition, as in "Here We Go Round the Mulberry Bush." (*b*) Individualization, as in the finger-naming rhymes, "This Little Pig Went to Market," "Here is Where the Driver Sits." (*c*) Reappearance and disappearance, as in "Peek-a-Boo," "Fly Away, Jack," "Hide and Seek," "Hunt the Thimble," "Hide the Stone." (*d*) Sensation, as in guessing games, "Blind Man's Buff," "Farm Yard," "Jacob and Ruth." (*e*) Choice, as in all games where partners, actors, or leaders are chosen. (*f*) Representation or imitation, as in all games that involve the reproduction of characteristic activities, impersonations of animals, people, imitations of work, etc. (*g*) Rhythmic motion, as in all dancing and marching games.

Games of contest are not comprehended by very young children unless the steps leading to the end in view are very simple. A group of kindergarten children numbering twelve contained but one child who grasped the idea of touching the goal, or reaching the goal before it was touched, in "I Spy;" in

"Drop the Handkerchief" most of the children were absorbed in running, not in reaching the objective point first.

A beginning was made in the study of stories. This work will be reviewed later.

REFERENCES: Nursery plays — Froebel, *Mutter- und Kose-Lieder;* Poulsson, *Nursery.* Finger plays — Böhme, *Deutsches Kinderlied und Kinderspiel*; Blow, *Symbolic Education.*

Games — Strutt, *Sports and Pastimes of the English People;* Culin, *Games;* Gomme, *Children's Singing Games;* Hofer, *Singing Games;* Johnson, "Education by Plays and Games," *Pedagogical Seminary*, Vol. III, No. 1; Genevera Sisson, *Children's Plays*, in "Studies in Education" edited by Earl Barnes; Croswell, "Amusements of American School Children," *Pedagogical Seminary*, Vol. VI, No. 2; Gulick, "The Psychological, Pedagogical, and Religious Aspect of Children's Group Plays," *Pedagogical Seminary*, Vol. VI, No. 2.

OUTLINE FOR DECEMBER.

The pedagogic class will study the outline of work and play for the kindergarten for December. Each member of the class will select some phase of the work, and prepare to direct it in the kindergarten. Upon this planning all the preliminary study of plays, games, songs, stories, and handwork will be focused.

I. *Stories.*—(1) Collection, comparison, and analysis of Christmas stories. (2) Study of stories through dramatization and through illustration in drawing and painting. (3) Re-telling stories to discover and preserve essential elements, and to gain power in oral expression. (4) Stories rewritten and adapted to the children in the various grades of the school, keeping in right relation the essential points: vividness of imagery, clearness in succession, and dependence of events, subordination of detail to main events, and climax of interest and action. (5) Stories suggested: Eugene Field, "The Symbol and the Saint," in *A Little Book of Profitable Tales.* This story is quite unfit for little children in its present form and should be used merely as a suggestion. "Piccola," by Nora Smith, found in *The Story Hour;* "The Poor Count's Christmas," *St. Nicholas;* "The Little Christmas Tree," by Susan Coolidge

II. *Handwork.*—Designing of Christmas presents suitable for children's making. Essentials: Materials used must be easy of manipulation; plan simple enough for child to invent or to elaborate from a suggestion.

III. *Drawing and painting.*—(1) Illustration of Christmas stories and other stories. (2) Winter landscapes. (3) Designs for handwork.

IV. *Christmas and winter songs.*—These will be taken from list outlined for the kindergarten.

THE KINDERGARTEN.

ANNE ELIZABETH ALLEN.

OUTLINE FOR DECEMBER AND JANUARY.

THE absorbing subject for December must always be Christmas, and in the kindergarten most of the time is devoted to the preparation of gifts and the making of a tree for those less fortunate than ourselves. This tree will be decorated by the children with ornaments of their own manufacture, and supplied with gifts they bring from home.

The true spirit of giving must come through the sacrifice of time and patience required in making the gifts; hence, they should be made, so far as possible, by the children. For this reason the simplest presents will be planned, and the children given plenty of time and encouragement to make several.

Stories, games, songs, and work of all kinds will center around this, the most delightful festival of the year. "'Twas the Night before Christmas," "Santa Claus and His Reindeer," and "Santa Claus's Cat and the Magic Curtain" will be dramatized.

January: (1) Review of the holiday season, for a week, with each individual in the kindergarten; telling experiences at home and elsewhere; bringing presents to show to others and share the pleasure of playing with them; telling Christmas stories and singing Christmas songs. (2) Broadening out from immediate family relationship to the connection with commercial life through the tradespeople who come to our doors and add so much to the comfort and convenience of living: the milkman, grocer, newsboy, postman, etc. Milkman: when and how he comes; wagon, cans, measures, bottles, tickets; uses of milk at home; source and care of milk. Grocer: wagon, baskets, boxes, barrels; shop: counters, desk, bottles, jars, trays, etc. If practicable, the children might open a grocery store, supplying the articles for sale themselves, making the money and taking turns as salesmen and purchasers.

Materials used.— December: cardboard, raffia, zephyr, chamois skin, gilt and silver paint, white and colored silk seam-binding, paint and pictures. January: cardboard, thin tin, milk bottle-tops and pasteboard boxes (for wheels and milk wagons), clay, sand, and blocks.

SANTA CLAUS'S CAT AND THE MAGIC CURTAIN.

(ADAPTED BY A. E. A.)

"The sun has not yet gone down in the west, and my sleigh is packed and every reindeer ready," said Santa Claus one

Christmas eve; "I shall have plenty of time to take a nap before it is time to start." So, lighting his long pipe and sitting in front of the great roaring fire, with his feet propped up on a small stool and the magic curtain hung just ready to fall when the sun should set, the jolly old fellow fell fast asleep. The cat sat down near the stool where the warmth from the fire kept her comfortably purring. She watched Santa Claus, and she watched the curtain, for she was a very wise cat and knew well what it would mean if her master slept too long.

She had been watching a long time, when she saw the curtain begin slowly to unroll as the last red glow of the sun disappeared from the sky. Santa Claus slept on.

"What shall I do?" thought the cat; "he must not sleep any longer. How dreadful if he shouldn't get all around with his presents tonight. I must get him awake somehow." With this thought she sprang upon a shelf near by and knocked over a tin plate, which fell rattling to the floor with a great noise; but Santa Claus slept on.

"Oh, dear, what shall I do, what shall I do?" thought the cat. Looking around the room, she saw the poker and tongs on the hearth, and she sprang at them, knocking them down with a great clatter; but Santa Claus slept on.

"This will never do; I *must* waken him," said the cat, as she jumped upon the footstool and ran up into the old man's lap and caught her claws in the long white beard that hung down to his waist. With the first pull Santa Claus's eyes were open, and he looked quickly at the magic curtain and then at the cat, whose fur he gently stroked, saying: "Well, well, pussy! you saved the day this time. Why, if it had not been for you, all my little children would have been disappointed, and there would have been no presents for them tomorrow morning."

Hastily getting into his great fur coat, cap, and mittens, he jumped into his sleigh and was off in a twinkle over treetops and houses, popping into every chimney on the way and forgetting no one.

And this is how the cat helped to keep Christmas one year, long ago.

SONGS AND STORIES.

ELOISE BEARDSLEY.

Songs.—"The North Wind," "Jack Frost," "Little White Feathers," "Snowball Song," "The Snow Clouds," "The Tree in Winter," "When the Snow is on the Ground," "Santa Claus," "Christmas Song," "Christmas Carol," "The Tailor Song," "The Shoemaker Song," *Songs for Little Children for the Kindergarten and Public Schools,* Parts I and II; Root, "Christmas Song," *Song Verses for Children;* Eleanor Smith, "Christmas Song," *Modern Music Series,* Parts I and II; Mrs. Crosby Adams, "There's a Jolly Old Fellow," Jessee Gaynor; "Shoemaker Song," "Jack Frost;" "Little Jack Horner," *Elliot's Mother Goose;* Mildred and Patty Hill, "Postman Song," *Songs of Life.*

Stories and poems.—"St. Christopher and the Child" (COURSE OF STUDY, Vol. I, No. 4), "Piccola," "The Fir Tree," "The Story of the Christ," "A Trip to Reindeer Land," "'Twas the Night before Christmas," "Jack Frost;" Whittier, "Child Life;" "The Shoemaker and the Elves," "Cinderella," "The Red Shoes," "Goody Two Shoes."

FIRST GRADE.

ELSIE WYGANT.

REVIEW FOR OCTOBER.

THE weather was so favorable for field trips during October that we took advantage of it and made three all-day trips, one to Lakeside, on the north shore, one to Morgan Park to see autumnal foliage, and one to a stock farm near Summit. These, with several trips to South Park, presented the main problems for work in the schoolroom.

Geography.—So many questions and interests resulted from the field trips that the time for geography was devoted to them instead of to the work on food that had been planned for October.

On the first trip, that to Lakeside, the children were especially interested in (*a*) playing in the sand—digging to find water; (*b*) collecting stones, especially the "pretty stones" and those which looked like other things, as "fairy caps," "little cookies," or "pieces of soap," and those that, when rubbed together, made "brown powder;" (*c*) wave marks on the sand; (*d*) watching and collecting animals found in the sand; (*e*) pulling up by the roots plants that grew in the sand.

Each of these interests seemed to be sufficiently permanent to warrant giving them some time and consideration. (*b*) and (*c*) furnish the geography

for November and December (mineralogy and crystallization); (*d*) formed part of the science work for October; and (*e*) was developed in October in the following general manner as part of the geography.

All of the number, reading, and writing used during the month were employed because they helped in their several capacities to make the image which we were developing more accurate and more complete.

Upon our return from the trip to Lakeside we made, in a sandpan 24×36×3 inches, a model of the beach we had visited, making the coast line as we remembered it, indicating the pier and the Winnetka waterworks, putting on the stones, shells, and plants that we had brought home, and representing the lake extending from the coast line to the edge of the pan. This lake basin was made of clay and limestone, which held the water for several days.

In pulling up the plants on the sand beach, what interested the children was the very long roots which each of the plants had. The roots ran along close to the surface, then perpendicularly downward. In school we compared roots of grass which grows in sand and in garden soils, finding those grown in sand much the longer. The children gave as one reason that the sand blows about, so that the long roots are needed to hold the plant in place.

During the informal talk in which this question arose, and in giving experiences of the trip, certain words and phrases, as "sand," "plants," "lake," "lakeshore," "long roots," were used and written, at the time upon the blackboard. The next time any of them occurred in conversation the written word was indicated, and so functioned.

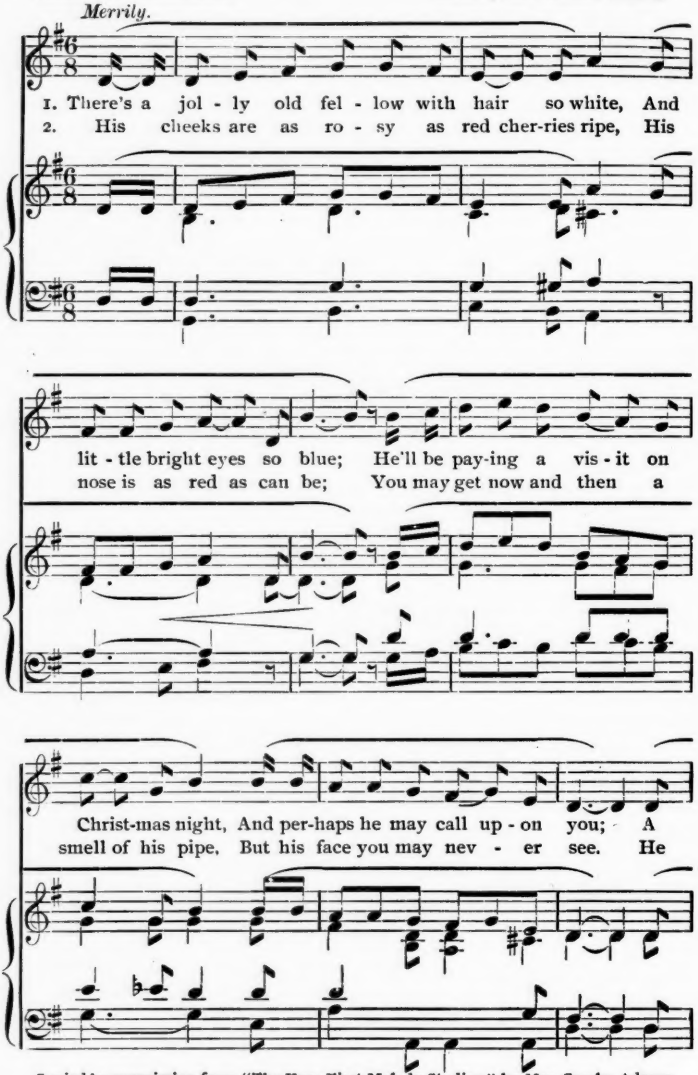
We tried an experiment to find some reason, other than stability, that makes long roots necessary to sand plants. Point to be developed, that sand allows water to run through, and so roots must cover more surface or go deeper to find water. Experiment to show this: equal amounts of water poured on equal amounts of sand and of garden soil; sand allows water to run through, garden soil holds water.

Number work was necessary here to measure soils and water. We used 5 cubic inches of each kind of soil and one gill of water, which means, in terms of number conceptions required of each child, that he (1) recognize one cubic inch; (2) plan the area necessary to make a cubic inch box; (3) make a 3-inch square, and from that a box holding 1 cubic inch; (4) observe and use 1 gill; (5) measure water which ran through both the sand and the garden soil; (6) compare these two quantities of water.

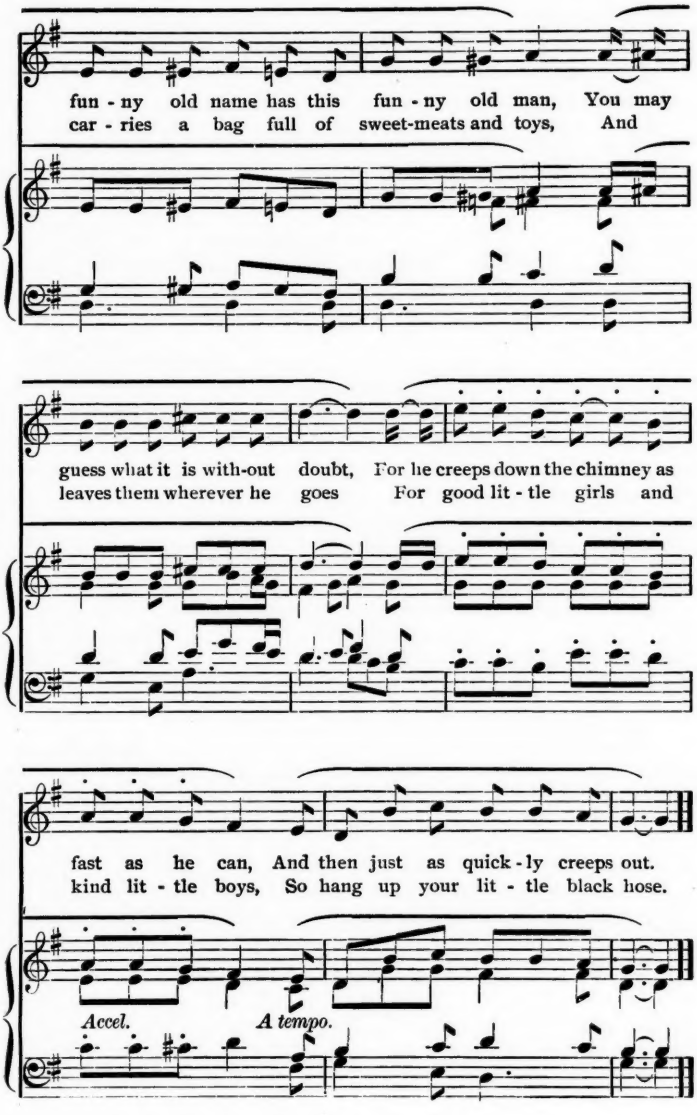
During the experiment, the words and phrases "sand," "black soil," "water," "gill," and "5 cubic inches" were written on the blackboard. The children gave their individual opinions as to which soil held more water and which let more run through, by writing either the word "sand" or "black soil" upon the blackboard.

Later the children, wishing to show the experiment to the third grade, drew a picture of it, and labeled it to explain the diagram as far as possible. The labeling required the writing of the words "sand," "black soil," "water."

SANTA CLAUS.

Author of words unknown — Music by Mrs. CROSBY ADAMS.

Merrily.
1. There's a jol - ly old fel - low with hair so white, And
2. His cheeks are as ro - sy as red cher-ries ripe, His
lit - tle bright eyes so blue; He'll be pay-ing a vis - it on
nose is as red as can be; You may get now and then a
Christ-mas night, And per-haps he may call up - on you; A
smell of his pipe, But his face you may nev - er see. He

Copied by permission from "The Very First Melody Studies," by Mrs. Crosby Adams. Clayton F. Summy, Publisher.

Santa Claus—Concluded.

fun - ny old name has this fun - ny old man, You may
car - ries a bag full of sweet-meats and toys, And
guess what it is with-out doubt, For he creeps down the chimney as
leaves them wherever he goes For good lit - tle girls and
fast as he can, And then just as quick - ly creeps out.
kind lit - tle boys, So hang up your lit - tle black hose.
Accel.
A tempo.

As even the labeled diagram would not be intelligible to the third grade, the following record was written and then read by the children:

RECORD.

1. We went to the lakeshore.
   We played in the sand.
   We found stones in the sand.
   We found animals in the sand.
   We found plants in the sand.

2. We had 5 cubic inches of sand.
   We had 5 cubic inches of black soil.
   We poured a gill of water on the sand.
   We poured a gill of water on the black soil.
   The sand let the water through.
   The black soil held some of the water.

3. The roots want water.
   The rain falls on the earth.
   The sand lets the rain run through.
   The black soil holds the rain.
   The roots in the sand grow deep to find water.

The children read 1 and 2 from the blackboard, drew the inference from the experiment, and helped to write 3.

Their motive in the above record was to make the work intelligible to the third grade; the teacher's motive was this, as well as to cause the children to hold in mind the conditions so clearly that the inferences should be evident.

Science.— The science work was carried out much as planned in the October outline, the only change being that, in place of a daily weather record, random observations were made upon striking weather conditions, and the change in appearance of landscape emphasized through paintings.

History.— The making of a playhouse, planned as a part of the October work, was not accomplished, on account of the bad proportion of the fruit crate. As the children are to work with the playhouse for a long time, it seemed advisable to put before them a box of good proportions. No such box being found ready made, that work was postponed until November. For each child there is now being made a box 15 inches high, 20 inches wide, and 10 inches deep, and divided with a partition into two floors. The children are to divide each floor into two rooms.

Stories were told of tree-men and cave-dwellers, and of Indian, Arab, and South African home-making. A trip was taken to the Field Columbian Museum to see the models of these homes.

We watched the construction of a building across the street from the

school, and recorded, through pictures, building, and dramatization, the various kinds of work done there.

Number. — As stated above, number was used only when it helped to make clearer the point under consideration, or when it helped to make an object for which there was a need. The article was not made in order to teach a mathematical fact, but the particular form was adapted to the growing skill and knowledge of the children.

1. A pattern a foot square for dusters.
2. Half-inch strips cut into 3-inch lengths for paste sticks.
3. Three-inch squares made for paste dishes.
4. Strips cut into ½-inch lengths for paste dishes.
5. Cubic-inch boxes made and used for measuring.
6. In the manual-training room we made looms 12 × 6 inches, with brads ¼ inch apart at the top and bottom, and holes made ½ inch apart along the sides to keep the cloth of uniform width in weaving. On these looms we shall weave holders to use in cooking.
7. Large box to hold six 1 cubic inch seed boxes. These boxes the children saw arranged in three rows of 2, in two rows of 3, and one row of 6.
8. Leaves of the dictionary 7½ × 8 inches.

Reading and writing. — No reading lessons, satisfactory as literature, seemed available because of the extremely small reading vocabulary this first month. Written words and phrases were used in every lesson as a means of communication, and simple sentences with much repetition were employed. These sentences were used in the manner illustrated by the record in geography above, and by the following directions for work necessary for making the leaves of the dictionary:

Make a rectangle.
Make it 7½ inches long.
Make it 8 inches wide.

Neither these sentences, nor those under geography, stood for a finished reading lesson, but for a crude beginning. However, the child's motive here, as in all reading, was to find out something. The children also wrote single words, as illustrated under "Geography."

Art. — Modeled in clay the fruits that we were studying in connection with seeds. A different kind of fruit was modeled by each child, so that we might have the whole collection. These modelings, which will be cast and painted and will serve as paper weights, will be among the Christmas gifts made by the children. Modeled frogs, toads, and snakes brought from the Morgan Park excursion. For blackboard work, see "History" and "Geography" above.

Dramatic art. — Imitated kinds of work seen upon the building under construction near the school, and dramatized the story of the "Three Bears."

Music and home economics. — Carried out essentially as planned in October outline.

OUTLINE FOR DECEMBER.

History.— Getting playhouse ready for interior decoration. Study and making of tiles for the kitchen floor of the playhouse.

REFERENCES: *Training of a Craftsman*, K 10,022; *Design in Nature and Art*, K 3,379; *Wm. Morris' Lectures on Art*, K 10,734; *Some American Tiles*, V 691; *L'ornament polychrome;* Owen Jones, *Grammar of Art.*

(The letters and numbers refer to the cataloguing in the Chicago Public Library.)

Geography.— The study of pebbles begun in November will be continued in December from the standpoint of crystals. Typical forms as quartz, calcite, galena, fluorite, mica, salt, and sugar will be shown. A trip to the Field Columbian Museum, at least once, and possibly twice, during the month.

Science.— Consideration of snow crystals in connection with geography. Daily weather record.

Home economics.— Making of candy and pop-corn balls for the Christmas celebration; rock-candy and colored crystals for Christmas-tree decorations. Making of tarlaton candy bags to hang on Christmas tree.

REFERENCES (for crystallization and making of crystals): Tyndall, *Forms of Water*, K 2, 687; Dana, *Minerals and How to Study Them;* Ruskin, *Ethics of the Dust; Crystallography for Beginners*, K 9,564; *Dictionary of Practical Receipts*, R K 103–10; G. H. Williams, *Elements of Crystallography*, 548 W 72; School of Education Library, *Text-Book of Systematic Mineralogy*, 549 B 34s.

Number.— Making of Christmas presents.

Dramatic art.— Dramatization of industries and stories (continued). Dramatization of "Night before Christmas."

Music.— "Christmas Star," from *Song Stories from the Kindergarten*, by Mildred J. and Patty S. Hill; "In Another Land and Time," from *Songs for Little Children*, Book I, by Eleanor Smith; "Little White Feathers," from *Songs for Little Children*, Book II, by Eleanor Smith; "Jacky Frost," from *Modern Music Series*, First Book.

SECOND GRADE.

CLARA ISABEL MITCHELL.

REVIEW FOR OCTOBER.

Cooking.— Apples were baked out-of-doors in brick ovens devised and made by the children. They planned and carried out the entire work, which included a luncheon served to the children of the first grade. This occupied the time of two cooking lessons. The other two cooking lessons of the month were spent in making apple jelly, as described in this number by Miss Van Hoesen in her review for October of the work in the fourth grade.

Spinning.— Spinning was commenced in the effort to make holders for handling hot dishes. The children proposed using various inventions they had seen to hasten the process of straightening and twisting the fibers.

Wood-work.— A hand-loom of half-inch pine, frame 16 × 12 inches, was commenced according to directions given in October COURSE OF STUDY.

Pottery.— The children began the modeling of bouillon cups.

Weaving.— Work baskets were made of rattan No. 2 and No. 3.

Bookbinding.— For a dictionary, sheets of writing paper were tacked together with Magill fasteners and covered with linen. A printed letter of the alphabet was pasted at the upper outer corner of each page, and new words are to be printed as needed by the teacher and pasted by each child on the proper page. Rules for cooking were written on pages which will later be bound into a cookbook.

Nature study.— Excursions were taken to near prairies for seeds, fruits, and soils; to Lakeside, to the swamp at Seventy-ninth street, to the ridge at Belmont, and to Wintergreen farm. Seeds and fruits were sorted and classified as to means of distribution. Soils from the lake, prairie, swamps, and gardens were collected, observed under the magnifying glass, and then discussed. Autumn foliage was observed, pictures of the landscape painted, and leaves collected. Characteristic plants were gathered at the swamp and drawings made to indicate their distribution in the swamp. Snails and a frog were brought to the school for the aquaria.

Geography.— Sand maps were modeled to include all places visited on the field trips. A simple account of the glacial period and its influence upon our topography was given in answer to the children's questions about the Blue Island ridge and the flatness of the surrounding land. The building shore line was seen during the excursion to the lake. After the visit to the stock farm, the children were able to tell in general the kind of land which may profitably be used for pasturage and what should be reserved for agriculture. They made pictures expressing their ideas of pasture regions. They were then shown pictures of the great pasture countries of the world — our western plains, Russia, South America, and the plains of Arabia and Persia.

History.—Pictures and drawings of Palestine and an account of Abraham and his flocks moving into Canaan set the children to imaging conditions of Hebrew life in the pastoral stage. For shelter, food, clothing, and mutual protection, the children saw and suggested the use of tents; meat, butter, cheese, and milk, helped out by such plants as were readily found; flints for getting fire, clay dishes, wool spinning and weaving as substitute for hides and skins; weapons for defense and leadership as a help to economical action.

Literature.—The story of Abraham was told the class and afterward read from Moulton's version of the Bible for children.

Before school in the morning, during the luncheon hour, at entertainments, and at morning exercises the children had opportunities for hearing, reading,

telling, and dramatizing stories related more or less closely with the regular work in the classes.

Writing.—At the beginning of the month attempts were made to have the children write their own records of observations made in nature study and geography. This failed because of the slowness of the children in using written forms. Some of them were unable to write any words. It was therefore decided that the teacher should write the record as dictated by the class. Freedom, logic, and truthfulness of expression were the only qualities demanded in the beginning, with the idea of minimizing the difficulties in acquiring new forms. Following are some of the sentences recorded:

RECORD OF EXCURSION TO THE LAKE SHORE.

We saw the lake at work. It was making sand.

We rubbed rocks together and made sand. Red rock made red sand. Black rock made black sand. Brown rock made brown sand. White rock made white sand.

We found red, brown, gray, black, and white sand at the lakeshore.

We found iron in the sand with a magnet. We found quartz crystals in the sand. They scratched glass.

The waves wear the pebbles smooth.

RECORD OF THE VISIT TO THE SWAMP.

We saw duckweed, reeds, swamp grass, cat-tails, and willows at the swamp.

We found snails in the water. Some boys found frogs and toads and snakes.

We looked at swamp soil under the magnifying glass. It is black. It is made of decayed sticks, leaves, roots, and stems. We found little quartz crystals in it. They scratched glass.

RECORD OF SEEDS AND FRUIT.

Some plants drop their seeds on the ground below them. Others have balloons that will sail on the wind. The milkweed and the thistle have balloons that travel in the wind. Some trees have wings on their fruit. Apple, peach, orange, lemon, and plum trees have brightly colored fruit. Birds and animals see it and carry the seeds away where they can grow. Burrs catch on people's clothes and the coats of animals. That is how they travel.

Wind, water, animals, and people help plant seeds.

Following is the record of the discussion of pasture lands:

Sheep and cattle need grass and water. Grassy lands should be used for pasture, but very rich land should not. Land where there is much water or many trees would be too rich for pasture. Such land should be used for raising grain, fruit, and vegetables. That would give food to many people. Herds

of cattle need great pastures to feed in. Cattle would waste rich land if they used it for grazing. It would be better used for agriculture. Wide, treeless plains make good pastures. Steep mountain sides are good for pasture.

Invitations to luncheon were written to the children of the Francis W. Parker School. Rules for cooking apples in three different ways were written for the cookbook; also rules for making apple jelly.

Reading.—No attempt has been made to have the children read orally, because they are not familliar with the forms of printed words, and recognition is either impossible or very difficult. Reading thus far has been confined to sentences written on the blackboard, directions for work printed on slips of paper (see report of second grade work under "Home Economics"), and to exercises in thought analysis of simple selections from second readers. Five minutes each day are spent in phonics games.

Arithmetic.—As the ruler was needed in wood-work and basket-making, the children were given lessons in its use; they were taught to recognize 1 foot, 1 inch, 12 inches, ½ inch, ¼ inch, ⅛ inch; ½ foot as 6 inches; ¼ foot as 3 inches; $\frac{1}{12}$ of a foot as 1 inch. Lessons on the metric scales and liquid measures, when needed in cooking, were taught in the same way.

OUTLINE FOR DECEMBER.

Cooking.—Cocoa; potato, bean, pea, and tomato soups.

Needle-work.—Button bags done in cross-stitch, on canvas, for Christmas presents.

Weaving.—Baskets for Christmas presents.

Wood-work.—Blotting-pads.

Pottery.—Dishes for the lunch-room.

Housekeeping.—Preparation and serving of luncheon for four primary grades through one week.

Games and entertainments.—Telling of stories to the children of the kindergarten and the first grade, also for the morning exercise. Dramatization of "The Night before Christmas" for the Christmas festival.

Nature study.—Comparison of cotton, linen, and wool fibers; their suitability to different climates and seasons. Uses of skin, scales, fur, hair, feathers, and shell as coverings.

History.—Continuation of pastoral life. Patriarchal life as exemplified by early Jews.

Geography.—Pasture lands, *i. e.*, plains and mountain sides. Stories and pictures of the herdsmen of Palestine, Arabia, and Persia; also of the cattle ranches of the western plains of the United States.

Literature.—Continuation of Bible stories of Abraham, Isaac, Jacob, Joseph. In preparation for Christmas: the Bible story of David; the Wise Men; the shepherds watching their flocks; the child at Bethlehem.

Oral reading.—"The Night before Christmas."

Music.—"Ye Shepherds, Arise!" *Reinecke;* "We Three Kings of Orient," "Gather around the Christmas Tree," Portuguese hymn.

Arithmetic.—Working out problems to be met in cooking luncheon for the four primary grades; also in the buying, planning, and making of Christmas presents.

Writing.—Record of observations made in nature study; rules for cooking; stories to be read as entertainment for other classes; letters to parents at Christmas time.

Reading.—Directions for cooking and other handwork. Such simple and good stories as can be found to correlate with and enhance the subjects of the program.

Drawing.—Plans for handwork. Illustrations for stories and lessons.

Painting.—Pictures of December landscape; illustrations of stories; studies of animals observed in science lessons; designs for pottery and other handwork.

SECOND AND THIRD GRADES.

(FRANCIS W. PARKER SCHOOL.)

REVIEW FOR OCTOBER.

JENNIE HALL.

Reading.—The Indian thanksgiving festival was assigned to the second and third grades as their share in our Thanksgiving exercises. In preparing for this we made a study of Iroquois conditions and habits. For the purpose of making more vivid the images, and of gratifying the play instinct, the children were encouraged to make an Iroquois village on a large table. Trees about twelve inches high were cut out of cardboard and will be tacked to the table. In order to get the correct form the children went to the park and studied the elm, the hard maple, the pine, the birch, as typical trees of the Iroquois forest. The house is being made of twigs and bark, Indian dolls cut from pasteboard are being covered with a costume made from old kid gloves. Before this making could be begun, the children read descriptions of the house, of the manner of building it, and of the costume. On account of the scarcity of material in books, the teacher made these reading lessons from Morgan's *League of the Iroquois*, and the children read from the board.

We studied the way of preparing for winter on an old-fashioned farm: storing of fruits and vegetables in the cellar, drying of fruit, making of jelly, canning of fruit and vegetables, making of cider, milling. The facts were learned from reading lessons on the board. Then the children chose one of these things to do in furnishing material for a spread on Thanksgiving day. Two children chose to make corn meal, three to make cider, three to smoke ham, four to dry apples, three to make corned beef, four to make butter, one to can fruit.

Before they set to work, written directions for using the necessary material were given them. Besides this, they read from printed slips "Farm Lessons" and "Stone Reports" (see COURSE OF STUDY, Vol. I); from books, *Cyr's First Reader*, pp. 12, 99, 72, and 79, and *Lights to Literature*, No. 1, pp. 68, 77, 79, 80, and 101, lessons giving descriptions of things seen or collected upon their field trips.

Writing.—The writing followed the subjects of study just as did the reading. Writing was done on paper to make memoranda and records, and on the blackboard to give time and freedom for individual thinking. The children wrote records of the visit to Glencoe and the farm, of things learned in their study of stones brought from Glencoe; they made memoranda of things necessary for them to have in their farm work, and copies of recipes to work by in the cooking-room.

Number.—The following are some examples of the work done in number: proper height of men, trees, and houses for Indian village, calculated from the heights of real men, trees, and houses. In the farm work children needed to make paper buildings. A plan was given them for making a house in one piece. Besides all the measuring here there were the dividing by two and four, and the determining of a way to decide upon the dimensions of a house with a given size of paper. There was also the necessity of precision in the use of the ruler as a square in erecting perpendiculars.

In cooking, the pint was used as the unit of measurement, and fractional parts of a pint, as one-fourth and one-eighth, were discovered through the constant demand for their use in the making of jellies and the canning of fruits.

OUTLINE FOR DECEMBER.

The idea of Christmas emphasized and enriched by the following means:

1. Making of Christmas presents: (*a*) For the home. Pottery: pin-trays, match-holders, salt-cups, tiles, rose-bowls, paper-weights. Wood: pin-trays, pen-racks match-safes, handkerchief boxes. Cardboard and cloth: soiled-handkerchief bag, duster and bag, sewing box, needle-book. (*b*) For the school: Leather to be tanned for seats in chairs, to be made by pupils of grammar grades; for use in school reception halls; candy for school Christmas tree; paper trimmings for tree.

2. Christmas stories: "Vision of Sir Launfal," by Lowell; "Christmas Monks," by Mary E. Wilkins; Bible story of the Three Wise Men.

3. Study of pictures of Madonna and child.

Housekeeping: Window box; test for proper soil; planting seeds, slips, bulbs; watching manner of growth; studying conditions necessary to plant growth. Housekeeping committees. Making of things for convenience of room: box for scissors, rack for towels, pin cushion.

Out-of-door observations continued. Change in climate and landscape; frost crystals; preparation of plants and animals for winter.

Studies related to the handwork outlined above:

1. History in connection with pottery: primitive dishes; various materials, forms, processes; uses of Indian, Japanese, Greek, Rookwood, and Wedgewood pottery; excursions to pottery stores and shops, and to Art Institute.

2. Geography in connection with pottery: clay and clay deposits, formation, and constituents; the making of other soils.

3. Science in connection with tanning and cooking: growth of hair; effects of alkalies upon fats; reason for chapping of human skin; growth and manufacture of sugar.

THIRD GRADE.

GUDRUN THORNE-THOMSEN.

REVIEW FOR OCTOBER.

AT the opening of school in a new building the room for cooking was not ready for use, and the bread-making planned had to be postponed. We were also handicapped by being unable to start the clay work immediately. Instead of beginning with something the children could do, we began with discussions about farm life, calling for the children's experiences on farms in order to picture the conditions for wheat-growing and harvesting.

These lessons were in part failures, because there was no strong desire on the part of the children to do anything; there was no motive for the study; no questions that needed answers. The experience of the month taught me that with little children discussions may be few and far between; that they must have some vital experience, some very close observation, to communicate to each other before a "recitation" is necessary.

The bread-making was done in the simplest manner. No attempt was made to explain the process except so far as such explanation was necessary for good work. The children were told, for example, that yeast is a plant, and that, like other plants, it needs to be warm, but not hot, in order to grow. No explanation was given of the effect of the yeast. The children were absorbed at the time in the doing. Questions followed afterward. They worked accurately and observed keenly.

The following points aroused spontaneous interest and surprise: the stickiness of the dough; that the dough had increased in bulk; that it became light and soft after standing; that baking changed it so much. One of the direct questions asked was: What does the yeast really do? An evident

desire was shown to know more about the nature of wheat and of yeast. The children spontaneously told of wheat fields, the threshing and grinding of wheat which they had seen.

The children found out from their homes that a family of six persons uses on an average sixty pounds of flour per month for bread-making. Following are some of the problems considered in this connection:

How much does one person use in a month? In a year? From one bushel of wheat forty pounds of flour may be made. What part of a bushel does one person use a month? How many bushels per year? If one acre yields fifteen bushels of wheat, how many persons can get their yearly quantity from one acre? How many acres of wheat must be harvested for the use of the people of Chicago?

These and similar problems led the children to consider the great quantity of wheat necessary to supply people with bread. A visit to a grocery store further impressed the children with the fact that wheat is used in enormous quantities. They found in the store over twenty articles made from wheat — crackers, breakfast foods, etc. The pound and bushel have been used constantly, so that the children are becoming familiar with these measures. A general idea of the acre has been given, but the class is anxious to lay out an acre. This will be done soon.

The school visited a farm. Unfortunately, it was impossible to find a wheat-producing farm in our vicinity; but many valuable data were gathered as to the storing of grain and hay, and the care and food of the animals. The greatest interest was evident in husking corn and plowing.

The children of the third grade will correspond with the children of a country school at Kansas, Ill., in the wheat-producing belt, and will ask them to answer the questions that arise in our work. In return they will tell the children in the country what is done with the wheat in our city, about transportation, milling, and export. We hope the country children will ask us questions about other phases of city life.

Excursions were made to the lakeshore at Glenwood, to a swamp, and to Beverly Hills. In each case the children expressed their delight in the autumn coloring. They made collections of seeds and of such animals as might be cared for in the room during the winter.

Following the excursions came a great deal of work in the school, painting of scenes, study of some aspect of greatest interest to the greatest number of children, reading, and writing of notes. Seed dissemination received especial attention. The results of experiments and discussions on this subject were drawings and paintings showing how seeds are scattered; collections of seeds to which the children are daily adding new specimens.

The poem "The Tree," by Björnson, was read, and the children seemed to appreciate the poetic language of the facts which they had studied. Some committed the poem to memory.

A large number of ants were housed in the room, and they are attracting

much interest. The children have used very freely books describing the life and habits of ants.

The planting of tulip bulbs on the south side of the school building gave rise to a number of interesting questions: Why plant at this time of year? Why not plant seeds? What part of the plant is it we plant? To answer these questions we had to know the parts of the plant, and how to recognize them. The underground stem and fleshy roots were especially studied. Reading from *Plants and Their Children*, p. 102, by Dana.

The class decided to make cups, saucers, and plates for the lunch-room. To this end they made drawings and designs, visited Burley's china store and a Chinese store; modified their designs and began their clay work.

The physical training, out-of-door sports and games, have shown themselves to be sources of greatest interest and delight to the children. They have read stories of the training of boys in other lands and of other times, the Spartan training in particular. Reading from Guerber's *The Story of the Greeks*, p. 62. Pictures were used freely; some of the best will hang on our walls while this phase is being studied.

For morning exercises on Halloween day the class dramatized Grimm's story of "The Shoemaker and the Elves." After the story had been told, the salient situations were drawn on the blackboard. The story was retold to clear up vague impressions. The class decided on the staging and costumes, and selected the players. The dialogue was worked out from suggestions of the different members of the class.

To make the class-room more homelike the class planned to make two window boxes. The dimensions were worked out from actual measurements, and plans were drawn one-half actual size. To accomplish this, such problems as the following occurred: How many inches in 2½ feet? ½ of 30 inches? ½ of 5 inches? ½ of 2½ inches? The boxes are nearly finished.

Work-baskets of reeds have been nearly completed.

Besides the reading mentioned above the children read "Susie's First Loaf," from *Uncle Robert's Geography*, Part II, by Parker; selections from "Heart of Oak" series, Vols. II and III; about ants in *Readings in Nature's Book*, American Book Co.

French (Lorley Ada Ashleman).—In the third grade the subject has been the harvesting, grinding, and use of wheat. The following little play dramatized by the children is a résumé of the work:

Eugène. Je vais prendre mon chapeau.

Robert. Pourquoi?

Eugène. Je vais faucher le blé dans le champ de blé, parcequ'il est mûr.

Robert. Ah oui, vous avez raison, voici la faux.

Eugène. Je vous remercie; n'oubliez pas de m'amener les chevaux vers les quatre heures.

Robert. Je n'y manquerai pas.

Eugène (dans le champ). La moisson est bonne. (Après avoir fauché le blé.) Voilà! Je vais faire les gerbes maintenant. (On entend la charrette.) Ah! voici la charette!

Robert. Mettons les gerbes dans la charrette.

Eugène. Maintenant transportons les gerbes à la grange.

Edwin. A la grange. Bonjour, mes amis; je mettrai les gerbes dans la grange.

Eugène. Merci bien. Bon soir.

Clifton à Donald. Allons battre le blé.

Edwin. Tout de suite, je vais prendre mon fléau.

Donald. (Tout en battant le blé.) Les grains sortent facilement des épis.

Clifton. Oui, mettons les grains en sacs. Voilà—maintenant allons au moulin. (Arrivé au moulin, Clifton demande au meunier.) Voulez-vous moudre ces grains, monsieur Victor?

Victor (le meunier). Certainement, avec plaisir. Vous pouvez venir chercher la farine demain matin.

Donald. Merci bien, monsieur. Au revoir, monsieur.

In the domestic-science department the children made bread and formulated the following receipt:

J'ai fait le pain.

J'ai pris deux cuillerées de lait, deux cuillerées d'eau, un petit peu de sel, un demi carré de levain, à peu près cinq grandes cuillerées de farine.

Je l'ai travaillé avec une cuiller de bois.

OUTLINE FOR NOVEMBER AND DECEMBER.

A careful record has been made of the children's questions, suggestions, and expressions of wonder and delight. The following list indicates to some extent what the children feel a need of doing and wish to know with regard to the work already started. It also suggests some new phases of work:

To bake as large a loaf as is used at home. To set the sponge. To know the exact temperature of the oven. To know something of the nature of wheat and of yeast. The processes of flour-making, threshing, and milling. Where is wheat farmed in America? How much wheat is harvested a year? Length of time between sowing and harvesting. To measure off an acre. To sow wheat in the spring. To do the plowing ourselves. To find out about the plow, how deep it should cut for wheat. Best kind of soil. How much to sow on an acre. To know more of the animals on the farm. How bulbs and seeds can live in the ground during winter. How frost is formed. What makes the mercury in the thermometer act as it does? To make

butter. To prepare luncheons for the other children. To have a party. To do something for Thanksgiving. To make Christmas gifts.

To answer some of these questions and to do some of the things suggested will be the work for November and December.

EXPERIMENTS.

1. Mix with water a small amount of corn meal, of oat flour, and of rye flour. Compare the doughs thus formed with that made from wheat flour. What makes the difference?

2. Into 100 grams of flour stir slowly 50 cc of water. After it is thoroughly mixed, take the dough into the hands and work it till it is smooth and elastic; then wash it with water. Change the water when necessary and continue the washing till the water remains clear. The elastic mass left in the hands is gluten. Bake some of this gluten.

3. The effect of different temperatures upon yeast: Put a tablespoonful of molasses into a tumbler of boiling water, one into a tumbler of ice water, and another into water at about 90° F., just below the body temperature. Into each tumbler crumble immediately a piece of yeast about as large as a pea. Let the tumblers remain at the ordinary room temperature for about half an hour, and then examine them.

4. A product of yeast: Mix a tablespoonful of molasses with a cup of lukewarm water and crumble into it a little yeast. Fill a test tube with the mixture and invert the tube in a saucer containing some of the same mixture. Fasten it in place, and let it stand for twenty-four hours. Test the gas with a match to show that there is something in the tube different from air.

From these experiments the children should be able to work out the conclusions that yeast, if kept warm, produces a gas, and that the gluten in the flour can retain this gas, and so give a light loaf of bread. Other questions which they may ask, as, why a sweet liquid is used, and how the yeast does its work, will be answered, so far as the children can understand the explanation. Experiments will be used in giving these answers, whenever possible.

The use of avoirdupois weights will be taught.

Making butter from one gallon of cream. Making and serving cocoa and soups to the primary pupils at luncheon, every day for one week.

Having a party for the second and third grades of the Francis W. Parker School.

Making candy for Christmas tree.

The farmer's care of animals. Herding. Study of the cow: habits, shelter, food; prehension of food — teeth, structure adapted to function; chewing cud. There will be an opportunity near the school to watch a cow closely, to see her milked and fed; also to visit a dairy. Find amounts of milk and butter used in a household per week, month, year; the average yield of milk of one cow; number of cows necessary to supply milk to

Chicago; amount of butter gotten from one gallon of cream. The gallon and its parts, the pound and its parts will be taught.

Drawing and painting of herds of cattle grazing, drinking; cows being milked; etc.

Study temperature. Place thermometer in ice water, warm water, boiling water; make record of daily temperature; find temperature of the soil at the depth of one foot, three feet, etc.; relation of all life to temperature.

Thanksgiving (see Miss Fleming's outline): The third grade will study the old English Harvest Home festival and give it to the school in dramatic form for its part of the Thanksgiving program.

For Christmas the children have chosen to make the following gifts: Material, wood: calendar-back, stool, book-rack, bread-board, key-board, match-scratch, picture-frame, paper-knife. Material, raffia: mats and baskets. Material, clay: cup, saucer, plate, vase, card-tray, pin-tray, candlestick, bouillon cup, fern pot, tea-pot stand.

In every case the children make a working drawing to a certain scale, and planned the work with suggestions and directions from the teacher. To help the clay work a visit to the Art Institute will be made — to see the Greek vases, study their color, shape, and design; note the stories the Greeks told on their vases; telling some of the best Greek myths, such as Apollo and the Python, Ceres and Proserpine, Hermes and the Lyre.

French (Lorley Ada Ashleman).— The French for the third, fourth, and fifth grades for December will be the dramatizing of Émile Richebourg's Christmas story, a great favorite with French children. Each grade will play the part best suited to the experience and age of the children.

NOËL.

(MISE EN SCÈNE.) SCÈNE I.

(Une chambre de pauvres gens: elle est si bien rangée et si propre que les vieux meubles disloqués et vermoulus ont comme un air de gaieté. Une jeune femme d'environ trente ans, pâle et amaigrie, tricote activement devant deux morceau de bois mort qui se consument lentement dans le foyer de la cheminée. Près d'elle, sur une vieille couverture pliée en quatre, ses enfants, un petit garçon et une petite fille, jouent. André amuse sa petite sœur Jeanne. La mère a plus souvent les yeux sur les deux têtes blondes que sur ses longues aiguilles d'acier, mais le tricot n'en va pas moins vite. Tout à coup la porte s'ouvre, un huissier de la justice de paix entre. La mère laisse tomber son ouvrage à ses pieds et se lève toute tremblante.)

L'huissier. Avant d'exécuter les ordres de monsieur Gorjut, je viens vous demander si vous pouvez payer.

La mère. Hélas, monsieur, mon mari a cherché à emprunter. Il n'a pas pu trouver un sou. Nous sommes trop misérables, on n'a pas confiance.

L'huissier. C'est aujourd'hui la veille de Noël; il vous reste une demi-journée et demain pour vous procurer la somme.

La mère (pleurant). Nous ne la trouverons pas! Quatre-vingts francs! Qui donc nous prêterait tant d'argent? Je vous en supplie, monsieur, ayez pitié de nous.

L'huissier (haussant les épaules). Je ne puis rien, ma chère dame, rien.

La mère. Monsieur Gorjut est bien dur? . . . . Nous chasser de sa maison au milieu de l'hiver! . . . . Il veut donc que nous mourions de faim et de froid dans la neige. Mon mari, c'est un bon père, un travailleur; s'il n'a pas payé, c'est qu'il a été malade pendant deux mois. Monsieur Gorjut le sait bien.

L'huissier (avec émotion). Je voudrais pouvoir vous venir en aide, mais j'ai sept enfants à nourrir et je suis pauvre. Allez donc voir monsieur Gorjut.

La mère. Je suivrai votre conseil, je vais y aller.—Au revoir, monsieur Girardin. Je vous remercie.

(Depuis un instant la petite sœur s'est endormie, bercée dans les bras de son frère. La mère la prend doucement et la met dans son berceau.)

La mère. André, mon enfant, veille ta petite sœur jusqu'à mon retour. Quand ton père rentrera de la forêt avec son fagot, tu lui diras que je rentrerai bientôt. Je vais faire une commission. N'oublie pas, mon chéri, de lui faire manger sa soupe.

André. Ce monsieur t'a fait pleurer. Je le battrai quand je serais grand. Je ne veux pas que tu pleures, maman.

La mère. Eh bien! Je ne pleurerai plus.

(Elle se met à genoux devant son jeune fils, l'embrasse sur le front, change de tablier et sort.)

SCÉNE II.

(Une longue rue. En dépit du vent glacial et de la neige l'air résonne de joyeux accents; des lumières ça et là semblent autant d'étoiles destinées à guider les pèlerins. La mère d'André s'arrête devant une riche maison. Après quelque hésitation elle sonne. Monsieur Gorjut, chaudement enveloppé dans une longue robe de chambre doublée de fourrures, ouvre la porte.)

Monsieur Gorjut (d'une voix dure). M'apportez-vous mon argent?

La mère. Hélas, non, monsieur.

Monsieur Gorjut. Si ce n'est pour me payer, pourquoi venez-vous?

La mère. Je viens vous demander du temps, monsieur. Jacques va mieux maintenant, ses forces reviennent.

(Mademoiselle Gorjut, une charmante fille de dix-huit ans, s'avance près de son père, regarde la malheureuse dans la rue et dit.)

Mademoiselle Gorjut. Père, fais donc entrer madame. Il fait trop froid ici et pour vous et pour elle.

Monsieur Gorjut. Non, je veux être payé, point de nouveau délai. Je ne veux plus attendre.

(La mére tremble comme une feuille agitée par le vent et se tourne vers la jeune fille.)

La mère. Mademoiselle, de grâce, intercédez pour moi, pour mes enfants, aupres de votre père.

(Mademoiselle Gorjut lève les yeux sur son père, fait un mouvement, mais elle garde le silence.)

La mère. Mon Dieu! Je n'aurais pas osé supposer que vous resteriez insensible devant la douleur d'une mère qui venait vous implorer au nom de ses enfants. Votre cœur s'est fermé pour nous. C'est á Dieu que je m'adresserai maintenant. Ah, monsieur, je ne vous souhaite pas de souffrir un jour autant que moi.

(Monsieur Gorjut ferme la porte sur elle. Les chanteurs de noël arrivent. Trois garçons représentent les trois mages de l'orient. Ils portent une chemise blanche, une ceinture de couleur, une culotte en toile bleue, un chapeau de carton recouvert de papier blanc et d'etoiles dorées. Ils ont aussi de longues barbes blanches. Une fillette représente la dame de noël. Elle porte une longue robe blanche bien simple, et un voile blanc. Les bergers portent leurs gibecières destinées à recueillir les dons des âmes charitables; les pauvres mères portent leurs nourrissons sur le bras; il y a même des vieillards à la voix chevrotante: ce sont ces voix réunies au milieu de la nuit glaciale de décembre qui font monter jusqu'aux cieux les noëls. Un des mages a vu la porte se fermer sur la malheureuse femme. Il fait signe aux chanteurs de noël de ne pas s'arrêter devant cette maison, et d'une voix lugubre:)

1er mage. Plaignez, oh plaignez la maison dont les vitres ne sont pas ébranlées par nos joyeux refrains; plaignez, plaignez la maison près de laquelle les chanteurs de noël passent sans s'arrêter.

(Les chanteurs de noël passent sans s'arrêter et arrivent à une autre maison. Un chanteur qui tient une cloche à la main se met a sonner. Alors toute la bande chante un noël.)

SCÈNE III.

(La mère, Jacques et le petit André font cercle atour du feu.)

André. Maman, c'st noël demain. Tu m'as dit que ce jour-là le bon Noël apportait des bonbons aux enfants sages. Ma petite sœur et moi, nous avons été sages, n'est-ce pas, maman?

La mère. Oui, bien sages, tous les deux.

André. Le bon Noël, viendra-t-il chez nous cette nuit?

La mère. Je l'espère.

André. Eh bien, maman! Je ne veux pas de bonbons.

La mère. Tu ne veux pas de bonbons, mon ami?

André. Non, je vais prier le bon Noël d'apporter de l'argent.

(La mère attire son fils vers elle, le couvre de baisers et lui dit.)

La mère. Va vite dormir, mon enfant; ton père et moi, nous allons à la messe de minuit.

André. Oui, maman; mais laisse moi vite mettre les souliers de ma sœur et les miens tout près du feu devant la cheminée.

(Après avoir fait comme il disait, il se couche. Les cloches sonnent à grande volée. Jacques et sa femme sortent pour aller à la messe de minuit. Quelques

instants après, deux femmes, dont l'une porte une lanterne sourde, entrent dans la chambre. La plus jeune femme prend la lanterne des mains de sa compagne, s'avance timidement jusqu'auprès du lit du petit André. Là, elle s'arrête; il lui semble que le garçon ouvre les yeux. Elle s'approche de la table, plonge la main dans la poche de sa robe. Elle la retire fermée, avec l'intention évidente de mettre sur la table ce qu'elle tenait. Mais en ce moment la lumière de la lanterne frappe en plein sur les souliers placés par André sous le manteau de cheminée. Elle s'approche vivement, se baisse et sa main passe plusieurs fois au-dessus des petits souliers; enfin elle se redresse et court rejoindre sa compagne qui l'attend à la porte.)

SCÈNE IV. NOËL — DE BONNE-HEURE.

(André et la petite sœur s'avancent vers la cheminée. Ils s'emparent des souliers y enfoncent la main. Des cris de joie retentissent dans la chambre.)

André. Maman, papa, des bonbons, des bonbons!

La mère. Mes enfants, des bonbons! (Se tournant vers son mari.) Mais, mais ces bonbons d'où viennent-ils?

(La petite sœur place un soulier sous les yeux de sa mère.)

La petite sœur. Regarde, maman, ça brille, c'est joli.

La mère. Ah Jacques! de l'or, regarde!

André. Dans ce soulier aussi, maman.

(Le père prend les souliers. Dans chacun d'eux il y a une pièce de vingt francs.)

La mère. Quarante francs. Nous sommes sauvés!

(Elle court embrasser son mari, son fils, sa petite fille. Enfin elle devient plus calme, donne les bonbons aux enfants, qui se mettent à les croquer.)

André. Le bon Noël est bien gentil; je lui avais demandé de l'argent, et il m'a apporté des bonbons. Je l'ai bien vu entrer. Je me suis réveillé la nuit. J'ai vu le bon Noël là, tout près de moi, il m'a regardé et j'ai vite fermé les yeux.

La mère. Etait-il vieux?

André. Non.

La mère. Tu n'as pas reconnu sa figure?

André. Si, il avait la figure de mademoiselle Gorjut.

La mère (tout bas). Ah! Dieu dans sa bonté a placé à côté de l'homme égoïste et sans cœur l'ange de la charité.

FOURTH GRADE.

GERTRUDE VAN HOESEN.

REVIEW FOR OCTOBER.

DURING October weekly field excursions and industrial work formed the basis of study.

I. THE EXCURSIONS.

The first excursion was made to the lakeshore north of Chicago, which is a type of wearing coasts. There the children saw a high lake bluff, cut

into ravines, and also how man is overcoming the wave action by means of piers. They made collections of the soil, plants, and animals.

The second excursion was to a swamp, from which also were brought collections of soil, plants, and animals. (*a*) The plant life was represented by swamp grass, cat-tails, duck-weed. (*b*) Of animal life, frogs, toads, snakes, crayfish, mosquito larvæ, ants, fish, and snails were found. A musk-rat's house was discovered, but the musk-rat itself was not seen.

During the days following the swamp was reproduced on a large sand table, and a special study made of the animals, with a view to caring for them. Each child selected one particular animal, and then went to the library for pictures and reading matter about it. The points which they looked up were: (*a*) the animal's home, (*b*) how made, (*c*) the animal's food, (*d*) how obtained.

The third excursion was to a large farm. Before starting, the children received the following directions from Mr. Ira B. Meyers, chairman of the committee on field excursions. They went equipped with notebooks and pencils.

DIRECTIONS FOR TRIP TO FARM.

Observations en route.—A vast prairie, with occasional wooded (oak) ridges. Corn fields, with corn standing out and shocked. Frequent hay-stacks, with upright and crossbar, used in placing hay on top of stack. Frequent truck patches; try to identify celery, cabbage, kohlrabbi, and note method of planting as basis for our spring garden work.

At farm.—(The different parts of the farm need not be visited in the order here mentioned.) Visit (1) chop-house, where the corn is shelled, and make chop from various grains for the cattle and horses. Secure for each grade a sample of the various grains. (2) The tool-house, and see corn-cutter, grain-binder, corn-planter, hay-loader, etc. (3) The pig-pen; observe the adult and little pigs, the way they are housed, fed, and cared for. On the barnyard grounds will be seen old and young turkeys, chickens. The arrangement of the barnyard as a stock-run, shelter, etc. (4) The barn; arrangement of stalls for the care of the horses; the young colts; food stored in the barn.

Walk west along the lane back of the barn and note the land farmed, pasture land, and cattle in pasture.

Activities that may be taking place if weather is favorable: husking or shucking corn, shredding corn, baling hay, plowing.

On their return the children laid out the farm on the sand table and erected the buildings. The financial and industrial side of farm life is a part of the November work, and will be reviewed in the January issue.

II. INDUSTRIES.

The industries necessary to the organization of the room into a working community:

1. *Home economics.*—As it is necessary to serve the luncheon in our own rooms, two plate-racks and knife-, fork-, and spoon-boxes are necessary. This need determined what the manual training for October should be. With help, the children planned these articles, and made working drawings, which they are now executing. The size of the boxes was determined by the length and number of articles needed to be kept in each. They are to be $11 \times 7 \times 4\frac{1}{2}$ inches, with a middle partition. The dimensions of the plate-racks were determined by their places in the room and the number of plates needed. They are to be 5 feet 4 inches long and $3\frac{1}{2}$ inches wide, and supported by two brackets.

The children in the room were divided into committees, one committee for each article needed. The chairmen are responsible for putting the pieces together when finished. For example: the knife-box consists of six pieces—the bottom, two sides, two ends, and the partition. There are three children on this committee. The chairman is making the bottom and the partition, the second member makes the ends, and the third the sides.

There are only two children on the plate-rack committees. The chairman is making the shelf and back piece, and the other child is making the brackets. When completed, hooks, on which to hang the cups, will be placed on the under side of the racks.

During the last week in October the children decided upon the way in which the luncheon could be best served, and accordingly divided the room into committees for doing it in the best way and the shortest time. The work naturally divided itself into (1) preparation for lunch, (2) cleaning up after luncheon, (3) washing and putting away dishes after school. It was decided that all of the children were needed in each of the first two divisions, and only half in the last.

The whole room was divided as follows:

(1) To prepare luncheon: Committees to (*a*) arrange chairs and tables; (*b*) set the table; (*c*) cook; (*d*) serve. (2) To clean up after luncheon: Committees to (*a*) collect dishes and carry them to the home economics room; (*b*) brush tables; (*c*) put away tables and chairs; (*d*) sweep; (*e*) dust. (3) To wash and put away dishes: Committees to (*a*) wash dishes; (*b*) wipe them; (*c*) put them away.

The serving of luncheon did not begin until November 1, so that no report can yet be made on it.

2. *Cooking.*—In preparation for social occasions and for the Thanksgiving and Christmas festivals, the children made grape jelly. The recipe below was written by one of the children. Jelly was made both from the whole grape and from the pulp alone.

RECIPE FOR GRAPE JELLY.

Fill ½ pint measure with grape pulp; put the skins into a bowl; then put the pulp into a stew-pan; press the juice out with a wooden spoon; boil

for 15 minutes; stir a little to keep from burning. (While waiting wash your dishes.) Put a cloth over the bowl. After cooking pour the grapes on the cloth. Tie the edges together so as to form a bag. Hang the bag over the bowl until the next day. Measure the juice and put it in the stew-pan; measure an equal amount of sugar; put it into the juice; boil it until the drops thicken a little; watch carefully; pour into hot glasses.

3. *Baskets.*— The children need work-baskets for their sewing, and they have begun the simplest kind, weaving them of reeds.

4. *Clay-modeling.*— Each child chose to model in clay, in low relief, a story which he had known and liked for some time. Among the stories chosen were: "Cinderella," "Red Riding Hood," "William Tell," "The Sea-Mouse," "The Crow and the Pitcher," "The Fox and the Stork," "The Three Bears," "The Three Little Pigs," "Jack and the Beanstalk." In every case it was necessary to reread the story before the illustrating could be decided upon. Drawings were made before the modeling began. When finished, the models will be cast in plaster and serve as a decoration for one side of the class-room. A photograph of them will be printed in the COURSE OF STUDY.

5. *Literature.*— The study of types of heroism formed the literature for October. In every case the discussion turned upon the character of the deed, its motive and value. Many characters were discussed, among them Peter, the boy at the Dyke, Ulysses, Horatius, Arnold, Winkelried, Leonidas, Achilles. Their first opinions the children formed in all instances from their own reading of the stories.

French.— The French taught in October has been summed up by one of the pupils in a paper that is here printed:

"Miss Van Hoesen told us to bring fruits to eat at recess. One day Mademoiselle came into our room and asked us the names of them. That made us think of them. Then, too, we were going to use fruits in cooking. We thought we would make a French game to play on rainy days. Each child chose one kind of fruit and selected four different ways of preparing it, and that made a suit. The North Side school wanted a set, and so we sent them over one, only we painted their set. We thought it would be nicer to have a design that we would all use, so we put an American flag on one corner and a French flag on the other."

This is on one card (not the translation):

Les fraises, strawberries.
Gelée de fraises, strawberry jelly.
Gâteaux aux fraises, strawberry shortcake.
Crême aux fraises, strawberry and cream.

OUTLINE FOR DECEMBER.

The Christmas work will furnish the leading thought for the month. The children will make presents, (1) in wood, (2) in

clay, (3) in basketry, (4) in copper. The designs and plans will be original, so far as possible, and cannot yet be given.

History: Copper will be used by the children for the first time in the construction of trays, picture frames, etc. On these articles they will hammer simple designs. Before using the material they will examine the collections of metal work in the Field Columbian Museum, the Art Institute, and elsewhere, in order to form some idea of the character of designs in this new material. They will draw their designs and model them either in clay or wax to see how they will appear when raised on copper. Then each will execute his design in copper.

In connection with this work, stories will be told of the discovery of copper and the use of copper to early peoples. Copper compared with other metals.

Geography: The location of our large mines. How and in what form the metals are discovered; the different ways of mining; the life of a miner.

It is impossible for the children to understand mining without a knowledge of the cutting power of rivers.

Science: (1) Examination of the different ores — copper, lead, silver, iron, and gold, (2) Experiment to get the metal out of the ore. Visit to foundries and smelters. (3) Examination and identification of the rocks in which the ores are found. (4) Examination of crystals under a microscope; study of crystallization.

History: The story of La Salle and Fort Dearborn will be completed. The fort will be built on a large sand table in order to image better the country at that time.

Science: Study of the landscape continued. Continuation of the study of the relation of temperature, wind, and moisture to the changing landscape.

Literature: Stories of Christmas in other lands. Continuation of *The Story of Siegfried.*

Dramatic reading: Dramatization of scenes from *The Story of Siegfried*

Reading of "The Ruggles Christmas Dinner," in *The Birds' Christmas Carol,* by Kate Douglas Wiggins.

Home economics: Making of candies for Christmas.

Music: Christmas songs. (See fifth grade.)

French: The French is directly correlated with all the other work of the grade. (See third grade.)

FIFTH GRADE.

HARRIET T. B. ATWOOD.

REVIEW FOR OCTOBER.

History, industrial art, manual training.— During October the children were engaged in making hand-looms in the shop, designing a table

cover for the schoolroom, designing individual plates for the daily luncheon, and modeling the plates in clay.

The designs for lunch plates drawn by each child were found to be crude and unsymmetrical. The children saw the need of learning to make perfect circles, and of dividing circles into equal segments. The mathematics hour was used for this work. A few beautiful designs were shown to the class, and a trip was taken to Burley's and to the Chinese china stores. New designs were then drawn and colored, and the work of making the dishes was begun.

The work involved in planning the loom was described in the November number of the COURSE OF STUDY.

The choice of the table cover, as the first article to be woven, was made after class discussion. The articles to be made later are curtains for bookshelves and windows, curtain cords, a school banner, and bags for carrying books. The children decided, after enumerating the various fabrics now in use, and examining woven articles in their homes, that wool would be the easiest material to work with. The woof of the table cover is, therefore, to be coarse wool filling, and the warp, cotton carpet cord. Before designing the table cover the children studied the designs found in their homes, and in books and pictures of the library. *William Morris; His Art, His Writing, and Public Life*, by Aymer Vallance, was found especially helpful. It was decided to make twelve-part designs, so that each member of the class could weave a part. Such a design is being made, and the final design is to be decided by class vote. The designs are drawn and then colored with water colors.

While discussing the ways of weaving and the materials used, each child was asked to find out all he could at home about the weaving which used to be done in the homes of America. Most of the children gave accounts of the weaving done in their great-great-grandmothers' days, and some possessed old New England spinning wheels and looms. A study of the home life in colonial New England is now being made. For oral reading the children are studying Longfellow's *Courtship of Miles Standish*.

Home economics.— After the experiments on the drying of fruits recorded in the November COURSE OF STUDY, the children prepared a half peck of apples and hung them on strings to dry for Thanksgiving. For the same festival they prepared three quarts of unfermented grape juice. They have prepared a small amount of apple-cider vinegar for making candy for Christmas. In addition to this they prepared a dessert for one of their luncheons. First the different ways of cooking apples were briefly discussed. Each child was then allowed to cook an apple for his luncheon in the way he liked best. The results were compared, and still other ways of cooking apples were considered.

The recipes used were discussed by the children after each cooking lesson, and were then written down for future reference.

Nature study.— The three phases of nature study outlined in the October number were carried out as follows: (1) The autumnal condition of the trees, shrubs, and herbs was noted and recorded in writing and paintings. Seeds distributed by wind, animals, water, and plant mechanisms were collected and preserved; autumn leaves were pressed to send to children in tropical countries; duckweed and various algæ were collected on field trips and placed in the aquaria. At their *own suggestion* several children prepared at home some experiments for the schoolroom, viz., they placed a sweet potato in a jar of water; planted birdseed in a sponge; started seeds in a netting placed over water. (2) Animals were brought from each field trip and provided with suitable homes in the schoolroom. The aquaria and animal cages are at present stocked with caterpillars, cocoons, mosquito larvæ, snails, leeches, fish, water scorpions, four snakes, and a newt. The newt has buried himself in the earth. The children employed several library periods in looking up the various animals and finding out how to care for them. They are keeping written records of the condition of their animals. (3) Two visits to the new school site were made, and its autumnal condition was recorded in color. The trees on the area were examined, and a list of the kinds found was made for future use. (4) Committees appointed for the purpose made daily records of temperature, frost, dew, and rainfall. Following the field trips to Lakeside, the swamp, and Beverly Hills, the autumn landscapes seen were painted.

Geography.— Field trips were taken to Lakeside, the swamp at Seventy-ninth street and Wentworth avenue, Beverly Hills, a farm near Summit, to permanent site of the school (twice).

At Lakeside the children studied the bluff, beach, and ravines. They took note of the materials of each topographic form, and brought back specimens of rounded stones, gravel, sand, clay, and vegetable mold. Rough pencil sketches were made in the field and paintings on the return. The children wrote descriptions of each region visited. The discussion that followed the field trip to Lakeside brought out the following points: The children had seen miniature cliffs which had been recently cut in the sand of the beach, sand bars, deposition of material on north sides of piers, wind ripple marks in the sand, wave ripple marks, wash from clay bluff caked over sand of beach, small gullies in clay bluff, increase in width and depth of ravine from source to mouth, side cutting along the stream. They had learned to recognize granite, slate, limestone, and the different soils seen on the trip. They had noted the color of the lake; the beauty of the autumn landscape; the scarcity of birds at this season; the unstable condition of the bluff face, and consequent lack of vegetation; the difference in appearance of a ship on the horizon, seen from the beach and from the crest of the bluff. These data are being used constantly to aid in building up the images of other regions which are being studied, and are found to be invaluable to all the other work.

On the farm trip, the grade and a corps of pedagogic students were divided into committees to investigate and report on special topics. The topics chosen were: (1) buildings of farm; (2) animals of farm, their care and food; (3) produce of farm; (4) farm tools and implements; (5) farm work going on in October. On their return the committees reported to the class as a whole, and these reports are being written up by the children.

Each locality visited was located on a relief map of the Chicago region. The story of the Chicago region, *i. e.*, its geological history, is being gradually worked out by the class.

A chalk-modeled map of North America, and also a physical map with political divisions, have been placed in the room. The first work upon the continent has consisted of reports given by the children of the regions of North America with which they are personally acquainted. These areas are located on the chalk-modeled map, reference being made to the political map whenever necessary. The reports are still in progress.

Writing, spelling, English.—(See also fifth and sixth grades in the November issue.) Papers on the following subjects were written by the children: "The North Shore;" "Beverly Hills;" "The Swamp;" "Animal Life of Schoolroom;" "Aquaria;" "The Farm;" "Recipes for Grape Juice, Dried Apples, and Apple Sauce;" "Story of the Wood Cutter and the Hobgoblins;" "Trees of School Site."

Music.—Songs sung in October were: "We Plow the Fields," "Harvest Songs," "Song of the Mill," "Sea Horses," "My Heart's in the Highlands," "Sur le Pont d'Avignon," and the "Marseillaise."

Literature, oral reading, dramatic art.—The children read orally "Old Pipes and the Dryad;" each child read to the class a favorite story, and we have begun to read *The Courtship of Miles Standish.* The story of the "Woodcutter and the Hobgoblins" was told to the grade, and the children planned to dramatize it for Halloween. Its dramatization was written out by each child, but owing to lack of time the plan was not carried out. Instead, colored illustrations were made, and one child told the story in morning exercises.

Mathematics.—The way in which mathematics is pursued was fully discussed in last month's issue. The actual problems used in October were as follows: finding of average age of class in years and months; finding amount and cost of materials for loom; making of plan to scale of one-half actual size; calculating number of tulips needed for the grade garden, garden 2×9 feet, tulips 6 inches apart, margin of 3 inches left on edge of garden; making of plan of garden to scale of 1 inch to 1 foot; finding loss of weight in drying apples in oven and in sun; dividing circles into $\frac{2}{2}$, $\frac{3}{3}$, $\frac{4}{4}$, $\frac{6}{6}$, $\frac{8}{8}$, $\frac{9}{9}$; calculating cost of tulip bulbs; calculating cost of three quarts grape juice made by class. Processes used were addition, subtraction, and division of decimals; addition, subtraction, multiplication, division, and partition of whole numbers; reducing fractions to lowest terms; finding least common

denominator; factoring; changing years to months and months to years, etc Drill was given in simple operations, as $\frac{1}{8}$ of 20, 12×4, $15 \div 3$, $7 + 8$, $12 - 5$, and children have been asked to learn tables at home. Additional examples in long division, division of decimals, and factoring were assigned to children who found difficulty with the work.

French.—It has been decided to have all the grades take turn in serving luncheon to each other. The luncheon is to be prepared and served in French, and French only, so far as possible, spoken during the meal. Entertainment of some kind was suggested, and a game of cards devised in which the different articles used on the table were grouped in sets of four, making a book. The game is to be played in the same way as the old game of authors; for example, knife, fork, soup spoon, and teaspoon constitute a book, each card bearing the drawing of one article and its name in French.

The "Marseillaise" has been learned and sung by the whole school as a typical French patriotic song, and the third, fourth, and fifth grades have learned, played, and illustrated with paints the little French round, "Sur le Pont d'Avignon." All new words presented were written upon the blackboard, and the children were frequently called upon to express themselves by means of writing. As a result of this, when the fifth-grade children were asked to write upon the blackboard their favorite verse of the French round in French, many of them wrote the entire verse without help, and in two cases a single correction was all that was found necessary.

REVIEW FOR OCTOBER.

(FRANCIS W. PARKER SCHOOL.)

WILLARD STREETER BASS.

History.—The work began with a description of the Buffalo exposition by those pupils who had visited it. The names of the countries which had exhibits there were given, and their location was roughly determined. The fact that many of the descriptions of these exhibits were written in Spanish was noticed. The architecture of the exposition was studied, and its appearance compared with that of the cathedral at Mexico City. The similarity was at once apparent to the children, but they were not certain just why that style was called the Spanish-American, and why Spanish is spoken in some parts of America and English in others. To find how this came about we studied the discovery and colonization of America.

We first compared the condition of America and Europe at the close of the fifteenth century. The condition of the various Indian tribes in respect to manner of living, industries, etc., was studied and represented by blackboard drawings of characteristic buildings, occupations, etc. Among the drawings were the long house of the Iroquois, the round house of the Illinois, the cliff dwellings of the Pueblos; making of canoes, cooking, etc

European civilization, books, printing, commerce, etc., were also described. The prevailing opinions concerning the shape of the earth, the commercial relations with the far East, and the desire for a short trade route thither were points next noted, and then the story of Columbus and his voyage followed.

The new material was presented to the class by picture and story, but mainly by reading from Guerber's *Story of the Thirteen Colonies*, a paragraph being read by one member of the class, and the reading followed by a discussion by the whole class with books closed.

Geography.— The work in geography followed closely the work in history. The general form of the land masses of the western hemisphere was familiar to the class from the well-known exposition poster. The location of the various countries represented at the exposition was determined, and the study was directed to the form of the earth and the reasons for believing it round. The appearance of vessels on the lake was conclusive proof to the class that the surface of the lake was curved, and a moment's thought convinced it that the shape of a free surface of water must everywhere be the same. The class is now following the voyage of Columbus.

On the field excursion to Glencoe, several ravines were seen in various states of development, from a V-shaped gully with sides of clay still sliding downward, to a ravine with level bed six or eight feet wide at the bottom, with a forest growing on its sides and well-developed side ravines. To understand how the one developed into the other the class filled one side of a box with clay, leaving the other half empty, so that the clay formed a bluff in the middle of the box. About an inch of sand was put on top of the clay and water was flowed over the top. The following observations were made and recorded by the class: (1) Water first soaked into the sand, doing no wearing away. (2) When sand was saturated a narrow stream was formed on top which cut a narrow channel down to the clay. (3) When the stream reached the clay it made the channel in the sand wider instead of cutting down into the clay. (4) An alluvial fan was deposited at the bottom of the bluff. The experiment was afterward repeated on a bluff made entirely of sand. The above phenomena, with the exception of (3), occurred, and much more rapidly, and in addition the class noticed that the stream formed near the edge of the bluff and cut back toward the source. These facts made the formation of ravines much plainer, and it is hoped that another visit to Glencoe or some other ravine area will make the main features of the life-history of a ravine perfectly clear.

Nature study.— The work during October was mainly seasonal — the distribution of seeds, autumn colors, etc. The field trips to Glencoe and to the farm showed the importance of an acquaintance with the common stones, granite, sandstone, limestone, shale, etc., and the class has learned to recognize each and to pick out the various constituents of granite.

The class has made preparations for the planting of the seeds for the window gardens by writing out what the needs of plants are, and, in so far as

it was able, what the function of water, air, light, etc., was in the life of the plant. These papers will be kept and compared with papers upon the same subjects written later by the pupils.

Number.— The very first lessons developed the fact that the class was weak in the multiplication table and in the simple operations with fractions. Daily drill upon the former has been given, and considerable time spent upon the addition of both common and decimal fractions.

The trip to the farm showed that the class's idea of an acre was exceedingly vague. A portion of the school-yard was measured, its area in square feet found, and subsequently reduced to square rods and a fractional part of an acre. The finding of the number of square feet in a square rod, involving the multiplication of $16\frac{1}{2}$ by $16\frac{1}{2}$, was a difficult problem for the class. It was solved by laying out the square rod on the floor, dividing it into four parts corresponding to the four partial products, and determining, by counting when necessary, the number of square feet in each one.

The above problem involves all the processes in the multiplication of fractions, and similar problems will be given until the children become familiar with this process.

Oral reading.— The class read orally from Guerber's *Story of the Thirteen Colonies*, and studied and learned from selections Kipling's *Ballad of the East and West.*

Writing.— The class wrote records of the field trips to Glencoe and the farm, of the experiments upon erosion of sand and clay and sand alone, and upon the needs of plants. These were corrected for spelling, punctuation, arrangement, and grammar, and were then rewritten.

OUTLINE FOR NOVEMBER AND DECEMBER.

HARRIET T. B. ATWOOD AND WILLARD STREETER BASS.

History.— Early history of New England. The topics considered will be:

I. The Pilgrims in Plymouth harbor. Picture of men, ship, and surroundings. Search for a place to build the town. Story of the suffering of the first winter, the labor and good crops of the summer, and the first Thanksgiving day.

II. Why did the Pilgrims leave their homes in England to undergo such hardships? Story of persecution of Separatists and Puritans, and the driving of the Scrooby congregation to Holland. The further persecutions, the great Puritan exodus, and the settlement of Massachusetts.

III. Dispersive forces. The fact that each congregation desired to determine its own method of worship not only led to their leaving England, but even made them intolerant of control by their brethren in America. Hence we see Massachusetts settled in towns more or less widely scattered, and then the more individual and original spirits again pushing off by themselves and founding entirely new colonies— Connecticut, New Haven, and

Rhode Island. The principle of local self-government in America arose here.

IV. The New England Confederacy. The necessity for defense against the Indians and the Dutch and French settlers made some form of union among the colonies imperative, and in the New England Confederacy which resulted from this we may see the first fruits of the principle of union that resulted in the Confederation of the Colonies and the United States.

V. A typical New England town. Home life of the people: houses; furniture; cooking utensils; clothing — how made, cut, material, etc. Farms: fertility, products, stock, how cultivated. Public life: town meetings; church; school.

VI. Relations with the Indians. Treaty with Massasoit; Pequot war; King Philip's war.

REFERENCES (see also October number of this volume): Howe, *The Puritan Republic*, pp. 130 ff., 153 ff.; Bradford, *History of Plymouth Plantation*, pp. 97–129 (Massachusetts state edition); Fiske, *Beginnings of New England;* Doyle, *English Colonies in America;* Lodge, *English Colonies in America.*

For maps: Winsor, *Narrative and Critical History of America*, Vol. III, p. 272; Eggleston, *The Beginners of a Nation*, pp. 275, 296, 343; Drake, *The Making of New England*, pp. 77, 81, 156, 161.

CHILDREN'S REFERENCES: Moore, *Pilgrims and Puritans;* Drake, *On Plymouth Rock;* Austin, *Standish of Standish* and *Betty Alden;* Andrews, *Ten Boys;* Guerber, *Story of the Thirteen Colonies;* Blaisdell, *Story of American History.*

Literature, oral reading, and dramatic art.— Reading of *Courtship of Miles Standish;* dramatization of the Puritan Thanksgiving; Christmas songs and poems; interpretation of Dickens's "Christmas Carol;" the Bible story of the birth of Christ; study of Christmas customs in the colonies.

REFERENCES: The Bible; Dickens, *Christmas Carol;* Strutt, *Sports and Pastimes of the People of England;* "St. Nicholas Day in Holland," *St. Nicholas*, Vol. XXIV, pp. 233–5.

Geography.— I. Geography of New England: The Piedmont region and the New England plateau studied by means of pictures, descriptions, and stereopticon views. Topography, rivers, harbors. Character of soil. Climate. Natural products. Manufacturing advantages.

II. North America: General topography. Climatic belts. Distribution of industries. (1) The wool industry: study of sheep; sheep-raising on small farms and on western ranches; regions of North America where sheep are raised; location of woolen manufactures of North America. (2) Wheat production in North America: wheat culture; regions of North America suitable for raising wheat; wheat market of the United States.

Field trips proposed: Stony Island; Stock Yards; McCormick Reaper Works; flour mill; bakery; Field Columbian Museum; Washington Park hothouse.

REFERENCES: Powell, *Physiographic Regions of United States;* Reports of Department of State, Washington, D. C., *Commercial Relations of United States*

and *Review of World's Commerce;* Shaler, *Nature and Man in America* and *Story of Our Continent;* Mills, *International Geography;* Russell, *Rivers of North America* and *Lakes of North America.*

CHILDREN'S REFERENCES: Carpenter's Geographical Readers: *North America;* Frye, *Complete Geography;* Tarr and McMurry, *North America;* Adams, *A Commercial Geography;* Chase and Clow, *Stories of Industry.*

Nature study.—(In School of Education): (1) Practical window gardening; raising of tulips and hyacinths for Christmas and Easter gifts; brief study of hothouse gardening; experiments in plant physiology to answer questions raised by the children; observation of winter condition of trees and shrubs. (2) Study of animal coverings; observation of animal life in schoolroom aquaria and animal cages. (3) Study of outdoor landscape; frequent painting from windows; records of rainfall, temperature, and slant of sun's noon rays. (In Francis W. Parker School): Weather records: Individual records kept by the pupils in the form of Jackman's Nature Study Record. Large graphical records made for the school.

NOTE: Most of the work of keeping the records will be done by the children in the afternoon study periods or during intermissions, but once or twice a month a period will be taken for the discussion of the records, the causes of the changes observed, and their effect upon vegetable and animal life.

Pressure of air: Simple experiments to show weight and downward pressure of air; pumps; principle of the barometer.

Change of state of water: Experiments to make class more familiar with vapor transpired by leaves of plants, and with changes into snow and ice.

Botany: Window gardens. Plants will be raised chiefly from the seed; some, especially if designed for Christmas or Easter gifts, may be raised from bulbs. Observation of germination in seeds of bean, pea, squash, and corn, as well as flower seeds. Simple experiments on function of water in a plant, *e. g.*, (1) transpiration from leaves; (2) water path through a plant; (3) entry of water into plant rootlets and root hairs; (4) force which raises water from roots to leaves; (5) effect of lack of water (wilting). Observation of condition of outdoor plants.

Animal life: Observation of animals in school aquaria and vivaria. Reports on habits of outdoor animals, especially birds.

REFERENCES: Atkinson, *First Studies of Plant Life;* Barnes, *Plant Life,* pp. 391–400; Andrews, "Experiments in Plant Physiology," *Elementary School Record,* No. 4, p. 101; Comstock, *Insect Life;* Jordan, *Animal Life;* Coulter, *Plant Relations.*

Number.—Problems which arise in the work in nature study will be carefully solved. These will include problems in common and decimal fractions, denominate numbers, and in stating a ratio in the form of a per cent. For method of the work see November number of this volume.

Home economics.—Watching of vinegar made in October; brief study of fermentation. Canning of fruit; use of sugar in preserving. Making of a simple dessert with fruit; use of tropical fruits on the table. Preparing

pumpkin for Thanksgiving pies to be made by sixth grade; making of cranberry sauce. Making of Christmas candies.

REFERENCES: *Mrs. Lincoln's Cook Book;* Church, *Food;* United States Department of Agriculture, *Year Book*, 1898, pp. 566, 567.

French.—(See outline for third grade.)

Music.—"Harvest Hymn," *Songs of Life and Nature;* "We Plow the Fields," *Songs for Little Children*, No. 2; "Duke Street," *School Hymnary*, p. 155; Reinecke, "Ye Shepherds Arise;" "French Christmas Song," "God Rest You, Merry Gentlemen," COURSE OF STUDY, Vol. I, No. 4; "Christmas Carol," *Modern Music Series*, No. 1; "Old Christmas," "Christmas Bells," *ibid.*, No. 2.

Physical training.—Free gymnastics, regular practice order. Tacto-gymnastics: exercises arranged to accompanying marching exercises, of definite rhythm, executed in place in alternate order; alternation of marching and running in connection with facings, for control of step; serpentine and maze running. Apparatus gymnastics (see physical training outline): use of chest-bars, development of arms and shoulder-girdle. Hopping and skipping; high and broad jumps; improvement of form.

Indoor games: first in, first out; touch-ball; foot in the ring. Outdoor play and practice: cross-tag: practice of starts and runs over short distances, timing over definite distances, not in excess of fifty yards.

Physical measurements, tests: jumping and climbing records. Individual exercises (special). Home exercises.

SIXTH GRADE.

JENNIE E. CURTIS.

REVIEW FOR OCTOBER.

Geography.—During October we explored the basin of a small stream that had cut its way through several lots from which the sod had been removed. In this stream and its tributaries we found that falls are made by obstructions in bed of stream; that a change of direction of stream may be caused by obstructions, by soft material yielding to wear, or hard material resisting wear; that the angle at which a tributary enters the main stream depends on the forward or source slope of the land; that where a stream curves it wears on the concave side and builds on the convex side.

Each child made a drawing of the basin and read in the library on brooks and river basins.

The lakeshore at Glencoe was visited in order to study building and erosion by waves; wind-waves and water-waves on the sand; clay cliffs made by erosion; the difference in vegetation on clay or on sand. We explored a large ravine and several of its tributaries to notice the location and wearing of bowlders.

These two field trips were made the basis for the study of the St. Lawrence basin. The Great Lakes were drawn; direction of their flow noted; also where canals were necessary in the narrow passages that connect the lakes; where the most important cities are built along the lake, and why. We then discussed the general relief of North America, pointing in the direction of region described, showing pictures of same, and using large putty relief map.

History.— The history for the year is to center around the idea of civic beauty; we shall use Greek history to bring out this idea. The work began with clay-modeling and pottery, and we visited first the shops where the children could see chinaware. Each child drew a dish, cup, or bowl that he admired, and copied the decorations, and later made a more careful drawing which he colored with water colors. Then each pupil made his dish, cup, or bowl in clay, according to his drawing. This making of home dishes is to lead the children into the pottery work of other peoples.

Arithmetic.— The children's ability to use number was so varied that we had three lessons a week in reviewing the processes of addition, subtraction, multiplication, and division.

OUTLINE FOR DECEMBER.

Geography.— Climatic conditions of China, Japan, and Corea; their causes. Location and causes of deserts of Chinese empire. Study of Chinese school, and city street scenes. General topography and drainage of Corea. Why was it one of the earliest countries to become civilized? On which side of the mountains are the greatest number of towns? Why?

History.— To Lesson LIV, Guerber's *The Story of the Greeks*, tracing on the map all movements and locating places mentioned. Study of many pictures of Greek life. Why did the Greeks make statues? Why is the statue of Hermes supposed to be the most beautiful in the world? Where was it found? In what condition? Describe it. Model statuettes and Greek pottery. Contrast the Hermes with earlier Greek statues.

Literature.— Browning's "Phidippides," Birth of Christ, the Bible.

Nature study.— Daily weather observations and records. Watch change in space covered by a sunbeam of given slant. Difference in position in sun at sunrise and sunset each successive morning. Observe circulation of air in schoolroom. Make three paintings of landscape as seen from schoolhouse in order to have the story of change of seasons in color.

Art.— See "History" and "Nature Study" in this outline.

Physical training.— (See fifth grade.)

SEVENTH GRADE.

NOTT WILLIAM FLINT.

OUTLINE FOR NOVEMBER AND DECEMBER.

Nature study.— For November and December the subject will be: How different kinds of animals pass the winter. To begin with, each child will write an account of how some animal he knows about prepares for and spends the winter. A class discussion of these papers will doubtless bring out the three heads of the subject — migration, hibernation, and the adaptation of skin coverings to withstand cold. Then, when the children find that the number of animals they know about is small, and their knowledge of the creatures' habits scanty, they will take up in field, library, and museum a study of the winter habits of beasts. Pictures will be painted of the various animals, stories will be written about them, and some of them will probably be modeled in clay. Then, when the study has gone as far as the teacher finds profitable, the class will organize the information and material it has gathered into a final paper.

In the following outline the topics are suggested in the questions.

MIGRATION.

Birds: What birds migrate from here? Where do they go to? How far do they migrate? Do they leave before the cold weather comes? Is cold the primary cause of bird migration? What is the condition of the favorite food supply of each kind when it leaves? Who are the first migrants? The last? What conditions admit of their winter presence? Do beasts, or insects of any kind, go away to spend the winter? Why not?

HIBERNATION.

What is hibernation? What animals pass the winter in this way? Why do they? Is it cold or lack of food that causes the seclusion?

Mammals (list of animals which sleep through all or a part of the winter). What ones seek a warm place stored with food, and what ones really hibernate? What is the character of the food? Of the storing place?

Batracheans and reptiles: In what kind of places do frogs, toads, lizards, and snakes spend the winter? Do these creatures eat during this season?

Insects: What becomes of the house-fly in cold weather? The butterfly? Of the beetles? The moths? Mosquitoes? (At this point a field trip will be taken to let the children seek in old stumps, under the bark of trees, under boards and stones, and among dead leaves and plants for the snug winter quarters of various insects.)

To be determined as accurately as possible: How warm are these various refuges in cold weather? Can frost reach them in winter? Does frost

penetrate cocoons? Or the bottoms of shallow ponds? To what depth does the ground freeze?

Skin adaptations: Animals that move about during winter — what defense have they against cold? Differences in covering among animals of the temperate, arctic, and torrid zones? From what animals do we secure our finest furs, wools, and feathers? At what time of year in this climate is this material secured? (The study of temperature variations over the northwestern area of the United States will be necessary in connection with this study.)

REFERENCES: "Hibernating Animals," *Science*, May 2, 1884; "Hibernating Mammals," *Science*, Vol. III, p. 538; Weed, *Insects in Winter*, p. 132; Burroughs, *Squirrels and Other Furred Animals; Winter Sunshine*, p. 55; Thompson, *Wild Animals;* Ingersoll, *Wild Neighbors*, p. 267.

EIGHTH GRADE.

REVIEW FOR OCTOBER.

HISTORY AND GEOGRAPHY.

KATHARINE M. STILWELL.

THE work in history and geography in the eighth grade during October varied somewhat from the published plan. The change was due to the immaturity of the majority of the pupils, and to their lack of previous training in manual work.

The work consisted of a study of Chicago and its environs. Those members of the class who had traveled over it described the extent of the Chicago plain and its general appearance. Then the whole class examined the soil of this plain — sand, blue clay, and limestone — made inferences as to its origin, and verified these inferences by reading. They also considered the drainage, observing the work of rivers and of the lake.

The advantages of this site for the location of a city, as brought out through discussion, were (1) its position on the divide between the St. Lawrence and the Mississippi basins; (2) its position on Lake Michigan, which makes it a lake port and a railroad center; (3) the varied resources of the surrounding country that supplies the needs of the citizens. These include clay for brick-making, lumber and stone for building, food supplies, raw material for manufacturing, coal to furnish steam power for this manufacturing, and cheap transportation, which has made Chicago a distributing center. The Illinois and Michigan canal was considered as one of the great factors that have contributed to this result.

The children next considered the size, area, and the population of the city. They found the population to be about sixteen to the acre. They did this by staking out a square 208.7 feet on a side, turning the right angles by

means of triangles of 6-, 8-, and 10-foot sides. In considering the distribution of the population in the city, the class was given the figures of population in some of the tenement districts, which range from 206 per acre to (in an extreme case) 875 per acre. The children compared these figures with those taken from Calcutta, Tokyo, and other crowded cities, and found by computation that at this rate a large per cent. of the world's population could be housed in Chicago. Inquiry into the responsibility for this state of affairs caused them to investigate our building laws, and this led them into some study of the system by which our city is governed.

After this the pupils studied the general plan of Chicago — the residence and the business districts, including the public buildings, the parks, etc. Then they proceeded to discover whether in the building of our city we have utilized our resources to the best advantage.

The class visited (1) Lakeside, to study river valleys and the work of the lake, constructive and destructive; (2) the business part of the city, to see the present harbor and the former harbor of the Chicago river; (3) the Illinois and Michigan canal; (4) the drainage canal; (5) the abandoned quarries at Stoney Island, to see limestone and to study glaciated surface; and (6) Wintergreen farm, near Summit, to study farm products. It is not necessary to say that we relied on the observations which the children had made upon previous trips and journeys. They gained additional information by reading. Further, they made paintings and drawings of all the places they visited, and, in addition to this, wrote expositions of the results they had obtained in their work.

NATURE STUDY AND NUMBER.

(FRANCIS W. PARKER SCHOOL.)

ELIZABETH ADAMS.

Nature study.— The class observed and made reports on the plant life on a vacant lot near our school building, the class being divided for this purpose into groups of four. Each group laid off a square rod in the lot, and was responsible for the report on this area. The reports were made in painting, drawing, and oral and written language, and embraced the general condition of plants at this season, including roots, stems, leaves, and seeds; the number of kinds of plants; the number of plants of each kind; the number of seeds produced by a single member of a plant family, by the entire family.

The remainder of the nature-study work was based on a trip to the lake-shore north of the city, on which especial attention was given to the erosion of the shore and the formation of ravines.

Arithmetic.— In connection with nature study the class worked problems similar to the following: If each seed produced a plant, how large an area would be covered by the seeds of one kind of the plants growing on your

area? Allowing forty plants to the square yard, how long would it take this plant to cover the state of Illinois? the United States? the land area of the world?

In addition to these problems the pupils found the amount of materials used in our building and grounds, and the cost: (*a*) Find the cost of plastering our room at 20 cents per square yard. (*b*) Find the cost of plastering our room if it is *a* long, *b* wide, *c* high, and cost *x* dollars per square yard. (*c*) What is the cost of the lumber in our floor at $40.50 per thousand feet? (*d*) Find area, in rods and acres, of the vacant lot. (*e*) The black dirt in the front yard is 4 inches deep. Find its cost at $2.25 per load. (*f*) What is the cost of the cement walk at 19 cents per square foot? (*g*) Find cost of brick wall. Brick costs $40 per thousand, laying $4 *per square*, and concrete 15 cents per square foot. Besides working these problems arithmetically, the pupils were required to put them into algebraic phraseology and then to solve them.

OUTLINE FOR DECEMBER AND JANUARY.

KATHARINE M. STILWELL AND ELIZABETH ADAMS.

History.—Subject: The settlement of the Northwest Territory.

In November the children traced the central and southern routes of travel across the Appalachian highlands.

1. The Mohawk valley as a path for the settlers. The Mohawk a natural route from New England to the West. The influence of the glacial period upon this region; upon its topography, drainage, lakes of New York, and soil. The Mohawk river, the ancient outlet of the Great Lakes. Indigenous vegetation; influence upon transportation. The influence of the glaciers on indigenous vegetation. The lake regions of central New York; British soldiers along the border; hostile Indians; settlers obliged to go through Pennsylvania and over the Braddock Road to reach Ohio; the Ohio Association; flat boats on the Ohio river; settlement of Marietta.

2. The Ohio country: Physical features; why attractive to the New England people; circumstances under which the United States acquired the Northwest Territory; the Connecticut Reserve; the Connecticut Land Company; story of Moses Cleveland; rush into the West.

3. Life on the frontier; conditions for procuring government land; need for a survey; farms set off only by "tomahawk blazes;" legal disputes concerning claims to land lying between original farms; method of settling disputes; action of Congress; how survey was made (see number plan below); journey of the immigrant; location desirable; half-faced camp; clearing the land; log-cabin; growth of settlement; demand for roads to connect the settlements with the East; trade on the Mississippi; the steamboat on the Ohio and the Mississippi; trade cut off from the East.

4. Internal improvements; government aid to Ohio; the Cumberland

road; the Erie canal; rage for canals; beginning of railroads; unification of the North; the corn belt.

REFERENCES: Sparks, *The Expansion of the American People;* Schouler, *History of the United States;* McMaster, *History of the United States;* Roosevelt, *Winning of the West;* Small and Vincent, *An Introduction to the Study of Society*, Book II; Howell, *Recollections of Life in Ohio;* Mills, *International Geography;* Shaler, *Nature and Man in America;* Shaler, *United States.*

Number.— Correlated with history. How the survey was made.

A north-and-south line was run from the southwest corner of Pennsylvania southward to a point on the Ohio river.

Problem 1. Run a north-and-south line from the southwest corner of the School of Education block 300 feet northward and mark it by driving two stakes upon it.

A west line was run at right angles to the north-and-south line.

Problem 2. Run an east line at right angles to former north-and-south line.

Then a series of parallel lines were run westward and a network of six-mile squares was laid out.

Problem 3. Lay off a network of 120′ squares by a series of parallels and perpendiculars to the north-and-south line of Problem 1.

The original six-mile squares were called townships. A row of townships north and south was called a range, and numbered in regular order, beginning at the northernmost and passing southward. Carefully marked central lines, run both north and south and east and west across the townships, divided it into quarters. Quarters were named northeast, southeast, etc.

Problem 4. Subdivide one of the 120′ squares of problem 3 into townships and quarters and find the acreage of all parts. Name the quarters.

Principal meridians and base lines were then fixed.

Problem 5. Establish two or three meridians at 25′ distances by the lengths of forenoon and afternoon shadows of a vertical stick. Mark them by wooden stakes, and then, in a similar way, locate and fix the perpendicular base lines.

Problem 6. Make a plan, to scale, of 16 of these townships in square form, number them, and point out the N. W. ¼ of Sec. 6; the N. W. ¼ of the S. W. ¼ of Sec. 7, Range 2; Sec. 3, Range 2; the S. E. ¼ of the S. W. ¼ of Sec. 3, Range 4, etc.

Question.—In case the stakes you have set to mark section corners should be pulled up and lost, how could you use the meridians and base line to recover them?

Here the geometry of triangulation will be taken up in an elementary way.

Geography.—The geography of the Northwest Territory will be studied in connection with the history of the settlement and development of that region (see history outline).

Current events are noted in the daily papers and the weekly issues of

The Great Round World and *The Little Chronicle.* The geography in relation to these events will constitute a feature of the work.

With the opening of Congress the isthmian canal will come up for consideration. As this topic is of general interest, it will be investigated somewhat as indicated in the outline which follows.

I. Necessity of a canal. (1) Location of the land masses of the world. (*a*) Present North and South America as one land mass with a continuous highland belt on the west, a lesser highland belt on the east, broken by the depressions of Hudson Bay, the Gulf of Mexico, and the Caribbean sea, and a central plain lying between these highland belts. (*b*) In a similar manner present the eastern continent as a single mass of land. (*c*) Columbus, Cortez, Hudson Bay Co., etc.; indications of the early need of this passage. (2) Advantages of a water route between our east and west coasts; means of defense; voyage of the "Oregon." (3) The preponderance of our population is in the eastern part of the country. Our ports, New York and New Orleans, are in the East. Our trade is with the nations on the Pacific. (*a*) Study trade products of North America. (*b*) Study South American countries—Chili, Argentine Republic, Bolivia, Brazil, etc. Their exhibits at the Pan-American Exposition. Why we send them what they can produce. (4) Our connection with the Orient. Disadvantages of our present route. Our exports and imports. (*a*) Study India, China, the Long Plateau, Indo-China, the islands of the sea, etc. (*b*) Why do we send agricultural products to agricultural regions? (*c*) Why we import manufactured articles.

II. Location of canal. (1) Topography of Nicaragua, Costa Rica, and Panama. (*a*) Rainfall at various places. (*b*) Study of trade winds. (2) Proposed routes: (*a*) Atrato; (*b*) San Blas; (*c*) Panama; advantages of this route; probabilities of purchase; (*d*) Nicaragua; location of Lake Nicaragua; the depression in the continental divide; the San Juan river; its history and present condition.

III. Construction of the canal. (1) The harbors, excavations, cuttings, dam, locks, and the estimated cost. (2) Compare these items with the corresponding items in the construction of the Chicago drainage canal; the Erie canal.

IV. History of these isthmian canals. (1) Ownership of the territory they traverse. (2) How the United States acquired the right to build this canal. (3) What interest England has in the affair. (*a*) Clayton-Bulwer and Hay-Pauncefort treaties. (4) Relation of France to the Panama canal.

REFERENCES: *National Geographic Magazine*, 1899, and January, 1901; *Mills' International Geography;* compendiums; *Earth and its Inhabitants;* daily press reports; *Review of Reviews;* the *Outlook.*

Science.— Subject: physics of heat.

It is believed that this subject will be of interest to the pupils in both schools, in the Francis W. Parker School because there is a new system of

heating, and in the University Elementary School because the heating plant of the university will be installed in December.

I. How our schoolroom is heated. (1) Visit the power-house, examine the heating plant. (*a*) Source of heat — combustion of fuel; conditions for good combustion. (*b*) Apparatus for combustion. (*c*) Apparatus for conveyance of heat; study conduction and connection. (2) The radiator; the apparatus for heat distribution. (*a*) Principles of radiation; simple experiments. (*b*) What determines the number of radiators needed in a room? "rule of thumb" used by builders.

II. How the street-cars are heated. (1) Stoves. (2) Electricity.

III. Methods of heating the homes of the pupils.

IV. Summary of the advantages of these various methods of heating.

V. History of heating. Principle applied at each stage of development.

REFERENCES: J. S. Billings, *Ventilation and Heating*; Carpenter, *Ventilation and Heating*.

Expression.—The time devoted to manual training and clay-modeling will be used in making Christmas presents.

In oral reading the pupils will study Kipling's *Ballad of the East and the West*. They will also present in dramatic form some part of the Christmas exercise. Painting, drawing, and writing will be used as the work in history, geography, and nature study demands expression.

Physical training.— Free exercises: regular practice order continued. Tacto-gymnastics: marching and running in place and from place. Elementary dancing calisthenics (girls): simple change-stepping in connection with flexions, extensions, elevations (legs); repetitions, hopping (schottische steps). Use of hand apparatus: wands, dumb-bells, Indian clubs. Apparatus gymnastics (see physical training outline). Use of fixed poles for climbing purposes: chest bars. Vaulting exercises: vaults and off-swings; forward vaults with standing, walking, and running starts, for control, form, speed. Walking beams: balancing exercises, for poise, balance, and gait. Games — indoor: Three Deep; Hare and Hounds; Hornet's Nest; Ladysmith. Records in standing and running high and broad jumps will be taken throughout the month and charted with the physical measurements and tests.

MORNING EXERCISES.

BERTHA PAYNE.

		LEADER.
December 3.	Current Events	Miss Stilwell
4.	Favorite Songs	Miss Allen
6.	Stories	Miss Mitchell
10.	Early Books	Mr. Flint

11.	Louis Pasteur	Mr. Jackman
13.	Homes	Miss Wygant
17.	Kepler	Miss Myers
18.	Tree Myths	Miss Langley
20.	Christmas Festival	The School

HISTORICAL EVENTS AND BIRTHDAYS.

December 3.	Battle of Austerlitz	1805
5.	Acknowledgment of the Independence of the United States by England	1782
6.	Max Müller, born	1823
11.	Alfred de Musset, born	1810
12.	William Lloyd Garrison, born	1804
13.	Heinrich Heine, born	1797
13.	Battle of Fredericksburg	1862
16.	Cromwell made Lord Protector	1653
17.	John Greenleaf Whittier, born	1807
18.	Flight of James II. from England	1688
24.	Death of William Makepeace Thackeray	1863
24.	Treaty of Peace signed at Ghent	1814
27.	Johann Kepler, born	1571
27.	Louis Pasteur, born	1822
31.	Battle of Quebec	1775